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EDUCATION

Vol. 68 JANUARY 1948 No. 5

Education *for* This Age

By N. L. ENGELHARDT, JR.
Director of Air Age Education Research

TODAY we are considering the educational needs of our young people who are about to embark on life in an Air Age.

An educated man in any age is one who has control over himself, one who has been trained to work harmoniously and faithfully with other people in his environment to produce a productive and happy situation.

Two hundred years ago a young man's existence was circumscribed by his father's farm and a small neighborhood within riding distance. Everybody knew everybody else from birth to death, and the neighborhood church made them all behave. The Christian principles of brotherhood among men did not get a very big test. Skills were learned under papa's guidance in the barn and on the fields. Writing and arithmetic were for the crossroads schoolhouse, and educational needs were well met. In this narrow environment education was a rather simple process.

Industrialization

During the topside of the Nineteenth Century we started to send young people to workplaces in great swarms. Corporations wanted them well-trained in job skills so we began vocational training for industrial civilization. Do your job, we will pay you well for it; buy our products, you will have a high standard of living. An educated man was measured by the amount of money he could make, the size of his home, the number of servants he had, and the benevolent attitude he held toward his neighbors plus, of course, the number of trips he made to Europe.

Aimed at greater economic productivity, secondary schools were jammed with all conceivable subject matter; 10 percent of the children were given a curriculum acceptable for admission to the university. This uppercrust would be the leaders. Education became synonomous with graduation from college. College was a great institution, a cloistered factory of educated manhood with all the attractions of a four year country club.

Today's World

So much for the past, on to today. About four years ago we really discovered that the world was round; that we had a machine that could use the universal realm of the air and get us anyplace in practically no time; that we had another gadget called wireless that enabled us to yell at anyone, anywhere, anytime; that we had a bomb that we could hurl through the skies

and slaughter tens of thousands of people without notice; that we had automobiles, automatic heaters and coolers, food in pills, disease preventative serums, gadgets, gadgets, gadgets. We had printing presses that turned out books and newspapers by the millions—plenty for everyone. We had enough seats in motion picture houses to entertain every young person in North America all at the same time. As a matter of fact, in the United States two years ago we even had enough transport airplanes to give all of our young folks a trip around the world within a one year period.

That is what education for production has done to or for us in the last fifty years.

We must now face the future with its possibilities for high productivity and limitless scientific achievement. How can man fulfill his responsibilities without considering the utilization of his products and abilities? The principle task of educated man in humanitarian society is to look beyond himself to the period when every product of technology will be utilized for humanitarian purposes. Educated man must look beyond the day in which he lives, view the achievement of the ultimate aims of mankind, and drive toward them.

The Big Job

The big job we face in education throughout this world is to teach people how to use the gadgets we have produced so that we may secure every possible aid in achieving harmonious relationships among people.

One of my advisors, Dr. Alexander Stoddard, recently stated the point this way:

> Many hoped fondly that our automobiles, these speedy and comfortable means of transportation, might enable us to see more of the hills and valleys and streams and green fields instead of just riding past and through them with bumper-to-bumper concentration. We thought maybe this machine might reduce such ugly things as intolerance, provincialism, and bigotry because we could enlarge our concept of neighborliness.
>
> So with the airplane. We thought that as people came to live almost next door to one another, they would understand one another better and learn how to live together in peace. But we have found that the machines are after all only machines—the means of either good or bad living, depending on how we use them in relation to the other considerations of life.
>
> A society that invents the telephone without stepping up its emphasis on the quality of what the telephone exploits, that develops the recording machine, radio, and television without stepping up its emphases on a better understanding and appreciation of oratory, the drama, good music, and the allied arts, that develops the automobile and airplane without teaching its people how to appraise and claim the beauties of the world, including the ability to live successfully together in spite of our differences, such society is riding to a fall just as surely as individual human beings have nervous breakdowns because they too have developed unbalanced lives.

From this preliminary analysis I would like to draw two major points. First, that the popular concept of education requires a new focus in order to produce the educated man in this new era. This focus should be in terms of utilization, development, and application of guided development toward the adjustment of the ultimate aims of mankind. Second, that I do not believe the existing basic theories of the educational process can be retained if we are to accomplish this important task. The schools which base their educational process on conservatism will not have the force to motivate their students toward a different world. Those which believe

solely in the scientific method as the basis for education will tend to continue with the work of mathematically precise productivity and not with the more subjective problems of utilization. The third group of institutions which practices the memorizing of timeless principles and everlasting axioms can offer no guarantee that those educated under that program will extend themselves to an analysis of the solution of the new problem that we face. Under such a system we should probably hear people quoting Aristotle as the atom bombs fell.

Desirable Utilization

We can no longer be content with that process of schooling which produced educated people in an agrarian society. Neither can we be satisfied with our present educational pattern which, by and large, is directed toward the training of young people for life and work in an economy which is based on productivity. By that I do not mean that society should not be productive. It must be productive. Production must be assumed. But the main point is that education should aim at desirable utilization with productivity taking a minor role.

Now, what elements in the situation today should be considered in the education of young people if these young people are to face adult life with the enthusiasm and desire to look beyond themselves, to struggle to understand people, and to look beyond the day in which they live? The earth on which we live today is no different from the earth on which people lived two thousand years ago. From a purely physical point of view the mountains and the oceans and the deserts and the artic regions and the air ocean are all the same, but the machines that men have developed—the steamships, the trains, the automobiles, the radio, the airplane—have made him realize for the first time just what this earth really is.

I doubt that anybody one hundred years ago thought of the air as an ocean touching the thresholds of all men on earth, an ocean which could be used for transportation and communication purposes. For centuries men have been struggling to find a passage through the north, then almost overnight, a few years ago, the entire arctic region was opened for transportation. For five hundred years people struggled to sail across the Atlantic Ocean to develop a transportation contact between the old world and the new. It was a long and difficult battle on the part of our seafarers. Six years ago we began flying across the Atlantic. Just last summer when I crossed to Europe I did not even see the Atlantic Ocean, and my plane was the 14,888 crossing by the particular airline with which I flew.

Vanishing Barriers

The Himalayas have, since the beginning of man, served as a great barrier between the enduring Chinese civilization and India. Within the last five years that barrier has been broken down, eliminated, as airplanes flew across the tops of the ranges at two and three hundred miles an hour. The inaccessible regions of the earth that have never been developed by man have been made fully accessible in only the last few years. There are many technical problems to be solved before the full potential of the airplane is realized, but the fact is that they will be solved. Moreover, it is our responsibility to see that our young people are educated to a full

realization of the opportunities which the air presents. We need to guide youth toward the proper utilization of this machine lest it fall in the hands of those who are concerned purely with selfishness, greed, and the ownership of all mankind.

We cannot expect to teach the reality or the potentialities of the air age by utilizing tools that were developed by people who never conceived of this universal system of transportation or of its high speed. People are today, in many of our schools all over the world, utilizing textbooks, pictures, maps, and charts which were written or edited by educated men of an agrarian society—men who had no possible way of visualizing the propinquity of people as it exists at this point. We teach children particularly to get along with their neighbors. How many of us realize that their neighbors include everybody on earth? Pictures of this world must be altered to meet the existing reality. Attitudes must be erected on the basis of the existing situation and not on the narrowness with which even our educated men saw the world decades ago.

Once our children have obtained these knowledges we should, if we are good teachers, guide them into the future. Have them develop within their own souls the ultimate aims of mankind. Study the latest possibilities of their productivity and their gadgets and apply that potential to the achievement of the aims that they have developed. Likewise, education itself must seek to use our science to its fullest extent as a tool of learning. Let's consider for a moment how this might apply to the airplane.

One Small World

The biggest problem that our young people face is the fact that they live in one world and a small world at that. That world must be unified if we are to have security and freedom from fear and want. There is no task which transcends this one. Everything we do in the education of our young people should be very much toward helping them to solve this big problem. In my travels and conversations with young people, it seems to me that they possess the desire to study and seek the solution of this problem but have been frustrated by the lack of effort through education to make them a part of the total scene. They have been cast aside and told that this was a problem to be worked out by mature men in government circles, that it was a problem of diplomacy and military power and that they, as individuals, could not make much of a contribution except perhaps to join the army. Our educational system, and I speak not just of the schools but the total environment which must be considered *education,* has left our young people in their local regions and has given them an academic, bookish type of understanding of the world. It has not yet broken down the barriers which would enable these young people to experience the world and to do something about it.

Unity Thru Proximity

We know that in the creation of the United States it was not politics or wars but rather the influence of transportation that created a real national unity. It was only after people were able to come close together and become acquainted with each other and to understand that their best interests and common welfare were not dependent upon their respective location or affected by distance that unity was

possible. Likewise in achieving world unity, the most serious error that we can commit is to think that any world political organization, no matter how perfect or practical, can serve as a substitute for the more difficult and laboring task of getting people together to learn of their cultures, their ideals, their religions, traditions, and customs, their hopes and wants. Only by the exertion of wide-spread individual effort can we achieve the understanding which is so essential for lasting peace.

To sum up, we do have a physical one world. We have through radio and air transportation impelling forces to bring all peoples of the world into one small community where they must live together or perish together. These forces have created the need for law and order. We have established in the UN a program to meet this need. In ICAO we have the rules for governing the use of the new medium of human relationships, the air ocean. In Unesco, we have established an orderly procedure by which ideas, cultures, and people may come together—a facilitating body ready to help all peoples who wish to utilize the service.

We have seen the tremendous effects which the use of air is having on every phase of living. We have witnessed the creation of new social and political institutions and the changing economic structure of family and government as a consequence of air progress.

And now we recognize the need for actual unity and the outward radiation of individual personality as the final phase in the achievement of one world.

A Difficult Problem

We are now up against the most difficult problem of all times. How can we create within all people the desire to move outward from self? For without such a desire, there can be no motive for action and our law and order will last only so long as they do not conflict with stronger desires of people and their nations.

The social one world in contrast to the physical one world is more than the organization of institutions. As we have seen in our own country, lasting institutions are created as a result of men working and living together; so it will be with the world. We need, therefore, to enable men to work and live together in order that institutions already created may be lastingly effective. Unity has no meaning unless we unite men. Men cannot unite if they live in isolation either as individuals or in groups of nations and cultures.

The desire to come together for unity among all people has not come except to a limited few. Without such desire on the part of the masses, there will be no motive which can lead to action.

Lack of Concern

In the daily life of procuring food and happiness, such things as rotation, revolution, Chinese people, and arctic exploration have no immediate importance. It is of no concern if the year is six hours more than 364 days or if sunrise is caused by the rotation of the earth rather than the movement of the sun. What difference does it make if an airplane does fly a great circle route rather than along a parallel? It simply has no bearing on washing dishes or changing the baby's diaper or getting to work on time tomorrow morning.

To extend his life to all parts of the globe, the average person does not

have to go there. He leaves that to his agents. Mrs. Jones wants California oranges and Florida grapefruit. She does not care about the geography or people in these places—she wants oranges for breakfast, period. Since she will pay for them, someone else makes a business of getting them to her. Economic relations throughout the world are of concern to those who make a business of satisfying Mrs. Jones's appetite.

We might well be very honest with ourselves on this point. Our individual desires to understand other people, to belong to a unified world society, have not been aroused. We want law and order for security but not to extend ourselves outward.

The most difficult problem we face is to create this desire, to establish a motive which will move us to action not only as a nation but primarily as individuals.

To create the desire for understanding other people, to establish the interest in world unity, to develop the motive which will lead to action requires that we place ourselves in the environment out of which each desire and interest can come logically.

World Environment

This environment is not a lecture hall, a classroom, our community, or nation. The environment is the world. We can sit back in our home town and desire law and order in the world to preserve our security, but the desire for the outward extension of self—the wonder, admiration, and love—will not come until we have placed ourselves in the environment of the world. Intellectual, aesthetic, and personal feelings can only be developed through contact; they are not abstractions of the textbook or speaker. As in America, so in the world, accomplishment of real unity will depend on bringing inhabitants close together so that they may have the opportunity to create interest and desire which will motivate the actions to wage peace and understanding.

Somehow we must arrange to place ourselves in the world environment. The use of air for transportation and communication has created the physical one world. We must use these new tools now to create the environment out of which our desires for a social one world may be derived.

A Different Situation

This problem is unlike the situation that existed in early America. In America, people migrated westward under the motives of opportunity and adventure. They thereby established the environment from which the desire for a unified nation grew.

In the world picture, however, there is little in the motive of opportunity, for opportunities elsewhere can hardly surpass those in this country. The businessmen and traders are so small in number (about 6 percent of all international travelers) and so specific in their objectives that they can hardly be expected to establish the environment for all people. What little they do does help, but it is inadequate for the tremendous task.

Obviously diplomats cannot qualify, and the motives which lure the pleasure-seeking tourist around the world are in opposition to the needs of the moment. Tourists represent over one-half of all international travelers but they are by and large curious. Curiosity is associated with the development of one's self. It takes all and gives nothing. It creates likes and dislikes. It is transitory and lacks sin-

cerity. Before the war, only 8 percent of all international travel was for reason of education, missions, or health.

Thus the creating of the environment out of which desire for world unity will grow cannot be left to chance. It is my firm belief that we must establish a catalyst to do this job. There must be a stimulation and guidance in order to achieve that which is left undone by governmental bodies. This to me is the responsibility of formal education, especially so if we accept the two assumptions which I outlined at the beginning, namely, that education should light the way to the future and should be concerned with equipping people to live on this planet.

Schools can do much immediately to add to our knowledge of other countries through the showing of motion pictures, reading, discussing, and capitalizing on local talent. They can draw upon all people in the community who have lived in different parts of the world. They can stimulate correspondence of young people, teachers, and parents on a world-wide basis. They can lend their support to all organizations which cut across national and cultural boundaries.

But, by and large, the present system of education is totally inadequate for the responsibility of creating the basic environment. Classroom study and recitation cannot be substituted for action if we are to create intense desires for world unity and peace. What we are really seeking here is the first step in any learning situation, namely, exploration, and discovery.

Program of Discovery

We cannot beat around the bush and hope that textbooks, cloisters, abstract teaching, or a year of military conscription can solve this problem for us. We must give every capable teacher and youth the opportunity to explore the world, to get together with other people, live and work with them, understand their desires, interest, hopes, and fears. This should be our program of exploration and discovery. This is the only environment out of which can come the motivation for action which will lead to world unity. This difficult, expensive, and enormous task may well be called the waging of peace. We can afford it easier than waging of war.

In producing an educated man for this age, our problem is to attain a program which will cause him to look beyond the day in which he lives to the achievements of harmonious relationships among men. He needs to be inspired to the utilization of our gadgets and productive genius, to direct the use of our engineering and industrial powers.

Into Reality

In other words, education must be brought out of its cloister into the reality of the modern world. We must build toward the ultimate aims of mankind, devoting the guided energies of youth to the implementation of scientific and economic gadgets we have produced.

We need to get people together—to live together, work together, play together.

To meet the needs of this day we need tremendous fleets of planes, trains, and busses to carry our young people to every corner of the world to learn by living and by experience, to receive the practical challenge that this world offers.

Some say that this job is enormous

and that its cost is beyond reason. To those people I would answer then that the civilization which we have created is beyond our control; that we, as human beings, have produced beyond our ability to consume; that we have not learned how to utilize the gadgets of our science.

This airplane is the greatest invention of historic times because it offers us the first possibility of uniting men. Our imagination and our desire to utilize this gadget for the benefit of mankind must be so intense that we will find the ways in which to do this job. We must have faith that in bringing our young people together to work and live and play we will find within these unbiased, unprejudiced, youthful minds the solution to our disunity and lack of friendship and understanding among those regional groups that have had to be separated for so long.

The achievement of world unity will never come through conservatism, pure science, or the memorizing of timeless principles. It can only come when we unite men and when all people experience the propinquity and universality of the world in which they live. It may be too much to expect that all this can be achieved befor the impact of another war but, if we are truly educated men, we will look forward to days beyond those in which we live knowing full well that the small efforts that we make today will lead eventually to lasting peace and unity among men.

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THE PROBLEM OF THE ITALIAN COLONIES . . . . . *C. Grove Haines*
AMERICAN AVIATION IN THE MIDDLE EAST . . . . *George A. Brownell*
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Aviation's Contribution *to* Education

By HOWARD W. SINCLAIR
Assistant Administrator for Aviation Training, Civil Aeronautics Administration

DURING the month of November in two of the world's capitals, the place of aviation education in today's world was discussed by officials dealing with high policy. In Mexico City certain delegates to the United Nations Educational, Scientific, and Cultural Organization were considering the international importance of aviation education. In Washington, D. C., the President's Air Policy Commission and the Joint Congressional Air Policy Board were meeting and deliberating on the national problems created by aviation with a view to recommending a reformulation of America's air policy. In their deliberations these two air policy bodies have considered the place of aviation education and aviation training.

On the one hand, the Mexico City program considered aviation in terms of its vast potential for the friendly intercourse and mutual understanding of peoples and nations. The educational implications of aviation in these terms are so vast and far-reaching that they immediately capture the imagination.

A Matter of Security

On the other hand, the President's Commission and the Congressional Board, in their study of the country's aviation needs, are giving considerable attention, among other problems, to national security. There aviation education comes in for consideration primarily in terms of its contribution to providing a reservoir of youth who possess an aviation background.

These groups, one meeting in Mexico City and the other in Washington, D. C., are concerned with the essence of that much-used phrase, the social implications of aviation: namely, the possibilities that aviation affords for "winged peace or winged death."

In the light of such high policy discussions of the place of aviation education, school people should find interesting an account of the nature and activities of the Federal Government agency most active in aviation education.

Division Setup

This agency is the Aviation Education Division of the Civil Aeronautics Administration, a division of the CAA's Aviation Training Staff. It consists of a relatively small Washington office (small both in terms of the Federal Government and in terms of state and local educational organizations), and an Assistant to the Regional Administrator for Aviation Training in each of the seven CAA continental United States regions who devotes most of his time and energies to aviation education. The personnel of both the Washington office and the regional offices located in New York

City, Atlanta, Chicago, Fort Worth, Kansas City, Los Angeles, and Seattle, have direct personal contact with all of the Civil Aeronautics Administration's facilities, and also with the pertinent Weather Bureau, Coast and Geodetic Survey, the Air Force operations and programs, the Library of Congress, and the aeronautic authorities of the several states.

This first hand contact with the governmental agencies most interested and most expert in aviation provides the aviation education personnel working with schools a unique resource.

This Division has as its mission the encouraging and the assisting upon request of state and local school systems and of institutions of higher learning: (1) to set up programs in the science of aeronautics and the technical aviation trades, and (2) to fuse the materials of aviation into the school curriculums in all subject matter areas and all grade levels.

Guiding Principles

In working with educational agencies the Division has closely adhered to the following three principles:

1. That education is the concern of each of the several states, and that local school systems are autonomous within the limits of state law and state department of education policy.

2. That because of state autonomy in education, the program of the Division is to encourage and assist, to the limits of its resources, aviation education programs. Unlike many of the other branches of the CAA, whose relation with the country's aviation interests is that of speaking as the law, the Aviation Education Division has no rules to enforce and no laws to interpret. It acts solely as a service agency to assist schools in their programs of aviation education.

3. That because education is essentially a process of sharing and also a process to which non-school and non-governmental agencies can and do make worthwhile contributions, the Division will cooperate with the educationally valid programs of the school services of non-governmental and non-school agencies.

Legal Basis

The Aviation Education Division of the Civil Aeronautics Administration was activated in the early months of 1942, on the legal basis of Title I, Section 2, "Declaration of Policy," of the Civil Aeronautics Act of 1938 that states:

> **In the exercise of its powers and duties under the Act, the Authority shall consider the following, among other things, as being in the public interest, and in accordance with the public convenience and necessity . . . (f) The encouragement and development of civil aeronautics.**

The immediate need in 1942 that led to the creation of the Division was the demand of the armed forces for youth with aviation backgrounds. As is known to all, Pearl Harbor categorically and painfully shocked America into realizing that the nation which controlled the air would win the war.

Prior to Pearl Harbor, even in the late 1920's—dates that are almost ancient history in the literature of aviation education — references can be found concerning the assistance that the Bureau of Air Commerce was offering schools. When the aviation regulatory and promotional functions were turned over from the Bureau of Air Commerce to the Civil Aeronautics Authority in 1938, the CAA continued the Bureau's activity of mak-

ing its services available to school people. The need for a separate division of aviation education did not become manifest, however, until the country's needs in the war emergency indicated an educational operation of such magnitude that it was beyond the resources both of those CAA branches that had previously contacted the schools, and of the skills of their personnel whose backgrounds were purely aeronautical and included no specialization in the techniques of education.

From its inception the Aviation Education Division has been characterized by relatively small size, but by very great activity. Early in its history its field personnel were well-known educators serving at considerable sacrifice as part-time consultants who won the confidence of state school authorities and college and university administrators. As a result, they were invited to participate in the planning of aviation education on a state-wide basis. During the first two years of the program's existence its energies were directed toward the encouraging and establishing of Science of Aeronautics courses on the senior high school level.

Early Program

In its early years it was known as the Pre-Flight Aeronautics Program and, as such, helped guide the training of teachers, sponsored the publishing of over twenty teaching texts, and encouraged school systems to undertake the course, so that by 1944 an estimated 50 percent of the high schools of the country had offered their students courses in the science of aeronautics.

Even at the inception of this program when the demand for youth trained in the science of aeronautics was paramount, those in the Civil Aeronautics Administration school program and those far-sighted educators with whom they were working saw in aviation education something more than a pre-flight science of aeronautics course that emphasized only the ground school subjects of meteorology, navigation, aerodynamics and engines. They saw in aviation education the avenue that the schools might use to interpret to students problems of the postwar world, a world in which the airplane would play a critical part.

The First Fusion

This realization was reflected in the "Air-Age Education Series"[1] which included not only texts for the science of aeronautics subjects but 20 other titles as well, each indicating some aspect of the fusing of aviation with the common school subjects.

In 1944 the interest was further manifested when several state departments of education invited the Civil Aeronautics Administration to assist them in setting up comprehensive programs of aviation education. These included not only the technical phases of aviation such as the Science of Aeronautics course and the Aviation Trade Training course, but also those aspects of aviation that are influencing and give promise of influencing mankind. This new emphasis found form in social studies units in the Science of Aeronautics course and in numerous, well worked-out suggestions for fusing aviation into the curriculum of all grades and all courses.

1 Aviation Education Research Groups, Teachers College, Columbia University, and Teachers College, University of Nebraska. "Air-Age Education Series." New York, Macmillan, 1942c. Prepared with the cooperation of the Civil Aeronautics Administration and sponsored by the Institute of the Aeronautical Sciences.

As the importance of aviation as a social force became more apparent to schoolmen, their interest in aviation education grew. The growth of this interest is reflected, not in the number of Science of Aeronautics courses, which have, in fact, dropped off in number from their wartime peak, but in the desire of school leaders to have teachers and curriculum makers include the materials of aviation in the warp and woof of their teaching and courses of study. Invaluable as a resource for this approach is the *Aviation Education Source Book*[2] that was prepared for and in cooperation with the Civil Aeronautics Administration and the American Council on Education by the Stanford University School of Education under the direction of Dr. Paul Hanna. For the teacher, supervisor, and curriculum maker, this volume is a storehouse of information on aviation and suggestions on method and curriculum.

Guidance Needed

In response to the demand for technical and professional guidance in aviation education, the Aviation Education Division, in the summer of 1946, took its present form with the assignment to each of the CAA regions of an Assistant to the Regional Administrator for Aviation Training with principal duties in aviation education. In the years between 1942 and 1946 the Civil Aeronautics Administration began to employ full-time consultants for field work, as the part-time consultants who had so generously and energetically served their country in the early days of the program found it necessary to give up their CAA contacts and devote all their time and energies to their respective permanent jobs.

Since the summer of 1946 the activity of the Division has increased two-fold and the curve of its activity is on the upgrade at a rate that, at this writing, appears to be in almost a geometric progression.[3] Over twenty state departments of education and numerous city and county school systems have requested the services of these CAA field men in instituting their programs of aviation education or revising their old programs. During the 1947 summer months, 73 teacher training institutions requested the Civil Aeronautics Administration to sponsor or to assist in the carrying out of aviation education institutes, classes and workshops for teachers. In the previous summer, 27 such requests were received; for next summer, the summer of 1948, over ninety teacher training institutions have already requested the assistance of the Division.

In their work with school systems and institutions of higher learning the educationists advise and assist the committees assigned to aviation education and frequently are given the privilege of coordinating the work. Whenever possible, the CAA educationists strive to coordinate and bring to bear all the resources of the Government and the school system itself, and to include all the assistance that the educational services of the airlines and industry, the Air Force, the Civil Air Patrol, and the local aviation in-

2 Stanford University. *Aviation Education Source Book.* New York, Hastings House, 1946. 855 pp. Prepared for and in cooperation with the Civil Aeronautics Administration and the American Council on Education.

3 Reports from the educational service divisions of airlines and the aircraft industry indicate the same upsurge of requests for services and materials.

terests and the state aeronautics commission can offer.

Work of Division

During the past eighteen months the Division has published or sponsored the publication of much documentary and resource material for teachers, curriculum makers, the supervisor, the mature and serious student, and the textbook writer. These include four extensive annotated bibliographies, a comprehensive list of films, an outline for an aviation program for the junior colleges, and an outline for a comprehensive state plan for aviation education, lists of sources of free and low cost material, a list of colleges offering courses in aeronautics and related fields, and several units of work for the elementary school teacher, along with the above mentioned *Aviation Education Source Book*. Two other volumes, *Demonstrations and Laboratory Experiences in the Science of Aeronautics,*[4] and *Teaching Aeronautics in High School*[5] are also of significant importance to teachers. In addition the Division distributes over five thousand prints of motion picture films and film strips of aviation subjects, made available through the CAA's Aviation Training Visual Aids Services.

Essentially, these activities are motivated and guided by the realization that it is the school's objective to train citizens for a democracy by equipping its students with a knowledge and understanding of democracy's institutions and problems. The accomplishment of powered flight by the Wright Brothers forty-four years ago is a development that has affected, is affecting, and will affect the very foundations of man's thinking in relation to his fellowman. It is creating new problems and new institutions. No discussion of national or international problems, whether it be in Mexico City or Washington, or for that matter in London or in Tokyo, can ignore it.

A Unique Contribution

A knowledge of aviation and its social implications is not part of the background of the schools; its developments have occurred within the teaching experience of many teachers. Neither is the know-how of fusing aviation into classroom method and curriculum part of the teacher's background. In providing these important elements to the schools, the CAA Aviation Education Division and all others interested in aviation education are motivated by the realization that they are making a unique and significant contribution.

4 Christofferson, H. C.; Cahoon, G. P.; Richardson, J. S.; Fairchild, F. M.; and Hamburg, M. *Demonstrations and Laboratory Experiences in the Science of Aeronautics, a Guide for Teachers and Students.* New York, McGraw-Hill, 1945. 155 pp. Prepared for and with the cooperation of the Civil Aeronautics Administration and the American Council on Education.

5 Aviation Education Research Group, Ralph Haefner, Director. *Teaching Aeronautics in High School, a Study of Methods, Principles and Measurements.* New York, McGraw-Hill. 1947. 400 pp. Prepared for and with the cooperation of the Civil Aeronautics Administration and the American Council on Education.

Global Minds *for* An Air World

By JOHN H. FURBAY
Director, Air World Education,
Trans World Airline

SOME writers have said that the airplane is going to change civilization and culture as radically as did the Industrial Revolution. People who live in the transition years between one epoch and another almost never realize that one period is ending and another beginning. Thus the man-in-the-street does not yet comprehend what the new air world will do to him and for him.

It is an historical fact that patterns of culture follow routes of trade. Much of the early literature, music, art, and great works of architecture arose where trade and transportation were best developed—around the Mediterranean. Here evolved the great culture of Egypt, later of the Greeks, then of the Romans. For several thousand years this culture didn't get far away from the Mediterranean. Why? Because of transportation. Aside from carrying things on one's back, the only means of travel in those days was on water. The peoples could sail from one side of the Mediterranean to the other and exchange both goods and ideas.

Nordic Cavemen

As a result of this interchange some of the earliest universities and libraries sprang up in North Africa. Greece and Rome became great cultural centers. But, during all these great developments, most of the ancestors of those of us who came from North European stock were still uncivilized; they hadn't come out of the caves yet. Isolated from the culture which was thriving around the Mediterranean they were at least four thousand years behind. Great works of poetry, music, art, literature—all of these things were by-passing them. As culture of the world revolved around the centers of transportation, Northern Europeans were left out of the stream of civilization.

Roads and Culture

When the civilizations of the Egyptians and the Greeks fell into the hands of the Romans, who were more aggressive, there opened a new epic in man's history. The Romans built roads, good stone roads, so solid that you can still ride over some of them which were built nearly two thousand years ago. They extended roads forming a network ultimately covering much of Europe, and opening up the uncivilized isolated areas of North Europe and the British Isles giving them their first direct contact with the civilization of the Mediterranean. They carried with them Roman political theories, the language and philosophy of Rome, and the Christian religion. Through that genius for organization, for which the Romans were famous, they planted throughout Europe the civilization and culture of the Mediterranean which was later to be carried by improved means of sea transportation to America.

Up to this time and for many more

centuries the world was limited by land and water transportation. Now that civilization has come to the era in which man has left the earth and its barriers and has taken to the air, new methods have become necessary for both peace and war. We used to think that a nation which controlled the seas could control the world. We used to think that mountains could stop armies, but now we have seen men, tanks, guns and ammunition, whole hospital units—everything necessary to carry out a campaign—delivered right over any bottle-neck of the seas, mountains, deserts and Maginot Lines. We have had to revise the tactics of fighting in an air world where man is no longer earthbound. Even a seaport is no longer necessary for a jumping-off place, as we can take off by air for any part of the world from such inland places as Kansas City or Minneapolis.

The airplane is destined to bring about shifts in population. There will be new cities because of the new transportation routes. I was in one a few weeks ago: Gander, Newfoundland, right out in the wilderness where there was nothing at all before airplanes opened it up.

New Markets

Aerial transport will not do away with railroads but will probably enhance their business as long as everything must arrive at the airports by surface transportation. In addition, the airplane is opening vast new markets which will mean more business for all forms of transportation. I have seen towns in South America without a highway or railroad which were, for centuries, totally isolated. Now airplanes are dropping right into those cities, bringing them in touch with every other city in South America and with the world. I have seen planes bringing in loads of cement for new buildings, shipments of American-made merchandise for the local stores, medicines for the ill. Planes now transport all sorts of things over the world to places where we could not travel before the plane came.

Cities which, within the next few years, have not developed good airport landing facilities for this new world of aerial transportation are going to be on their way out as much as were the cities a generation ago which failed to provide themselves good railroad facilities.

A Changing Concept

This air world is bringing a change in man's ideas of geography. We were taught that the earth is round. Yet most of our maps tell us the earth is flat. It was an unfortunate contradiction of ideas. When we entered the last war the Air Force found that one of its biggest jobs was to teach global geography, the concept of our earth as a globe. We had learned too much geography from flat maps that can never be wholly accurate. We were too accustomed to the Mercator Projection. It is true that at the equator the Mercator Projection is completely accurate, but the farther north and the farther south one goes, the more inaccurate this map becomes. Mercator's projection makes Greenland and Iceland appear many times their actual size. Look at such a map, then look at a globe, and you will see these disproportions. The newer polar projection maps are in many ways better, but we need to study geography much more from globes.

The Air Age gives us many new concepts of direction. If we are going to Europe from Kansas City, the shortest way is not to New York, then east across the ocean as travel by surface transportation has always implied. We leave Kansas City in a northeast direction and proceed to Paris, leaving the United States at either Chicago or Detroit. This is a different concept of direction and space from that used by railroads and ships. Suppose we are flying from Kansas City to China. Do we take a plane to California continuing on via Honolulu to China? No, we go northward from Kansas City to China, taking off from Chicago or Minneapolis. These are the jumping-off-places for China and the Orient now, and the routes go north by northwest through Alaska.

An Important Direction

North is destined to be an important direction in this Air Age. The reason is this: In the northern hemisphere lie the major populations of the world —the Orient and Russia, the Middle East, Europe, and North America. If you connect the United States directly by air with any of these other areas of population, whether Paris, Cairo, Moscow, or Shanghai, you find that the routes go northward. It should also be pointed out that if we fight another war it will likely be an aerial war fought through the arctic zone, right over the top of the world. Peacetime trade and passenger traffic are now going far to the north over the Atlantic and Pacific oceans, skirting the arctic circle. As a result, new population centers are springing up along those northern air routes. Perhaps if Horace Greely were alive he would want to revise his "Go West, young man," to match the new Air Age, advising, "Go North, young man, Go North."

There are other respects in which we are changing our ideas of geography. The world has shrunk in size and distance. During a two week vacation we once could get no farther than a few hundred miles from home, but today we can go around the world in that length of time and spend eleven days of it fishing in as many different countries if we like. Now we can have breakfast in Chicago, afternoon tea in Ireland, and dinner in Paris—all the same day. That is quite a different kind of world from father's and grandfather's. And as the world shrinks in distance, it *expands* the horizons for each of us since we can go so much farther in a given length of time.

In Chicago recently I met a business man who had just flown in from Paris. He said that in less than a month he had made three trips to Paris. In setting up branches of his business all over Europe, he maintains one office in Chicago and another in Paris, and commutes back and forth. He is one of many who do the same thing. His world has suddenly expanded and he can carry on business in what were once considered faraway places. TWA, first to fly passengers coast-to-coast as a transcontinental airline, has had a similar experience in becoming Trans World Airline. This far-reaching expansion requires a whole new concept of business—the global concept.

Task of Preparation

The airplane may be bringing together the people of the world faster

than they are ready for it. We have a big task to prepare the minds of people for living and doing business in One World. We are still thinking too much in the horse-and-buggy days.

We must get acquainted with our new global neighbors. If the farthest is less than forty hours away by air, we can't call them "foreigners" any more. The whole concept of other nationalities being alien to us has to go. And if we are going to get along with these people as *our neighbors,* we are going to have to know who they are and what they are like. Let's take a look at them.

Our World Neighbors

What are our world neighbors like racially? When we start traveling we are amazed to find out that the civilization in which the white man is god simply doesn't hold in most of the world. To those who believe the white man is the most important creature on earth and that he runs this world, it is a shock to discover that the white race is only a minority race, and a very small minority at that; that over three-fourths of the world's population is colored, mostly *brown* (and there is no yellow or red race, these are also brown). Both the white race and the Negro race are minority groups, and if our thinking on race problems hasn't progressed beyond these groups we have missed most of the world's population.

Whether we like it or not, we are going to have to change our notions of the superiority of the white race. One finds out if he travels much that there are smart people among all shades of skin. Those people who carried on the civilization of the world for five thousand years did not have Nordic white skins yet they gave us all the seeds of the culture in which we pride ourselves today. While many white people still look down on all colored peoples as inferior, the reverse is also a fact little-known to most of us; that many of the colored races definitely look down on *us* as being inferior, saying, "These white people are only babes in the woods of culture. They only got civilized day before yesterday." They rationalize, "We had cultrue long before they crawled out of their caves." This is, of course, a truth we haven't talked much about.

This prejudice against non-whites very definitely requires us to re-orient ourselves, particularly in our relations with the brown peoples. Our ideas of colored peoples is pretty much limited to Negroes. The boys in the service had a difficult time while abroad trying to figure out who was white and who wasn't. I will never forget the story about a USO dance one night in Cairo. There had been an argument about who should be admitted. The boys still had the notion that being white really mattered, but they couldn't arrive at a definition as to who was white and who wasn't. They finally decided on a way to determine this. They got a brown paper bag and hung it by the door, and then had an MP stand guard by it. They instructed him: "Look at each arriving guest and if his skin is as light or lighter than the brown paper bag, let him in —he is a white man! But if his skin is as dark or darker, keep him out— he is *not* a white man!"

Mental Adjustment

In developing our civilization we have lived in comparative isolation and haven't realized what the rest of the world was like. And now that the world is at our doorstep, we are going

to have to do considerable mental adjusting, and in so doing many prejudices will have to go. Prejudice is taught, it is not inborn. A white boy who had lived in Africa and the Near East as a child, and had known very few white playmates was returning to the United States to go to school. He met his cousin for the first time when he arrived in New York, and his first observation was, "My gosh, Pop, she's *white.*" He had a child's point of view. He had never heard any talk about white people being superior. He had played with the brown children all his life and, to him, they were all just *kids,* people with whom he had had lots of fun. Perhaps that is the kind of concept we adults are going to have to develop: that we are not white or brown or black, but that we are all *people*—the human race.

We also are going to have to revise our notions of religion. Brought up in a predominantly Christian country where it is often difficult for the various branches of the same religion to get along together, we find it even more difficult to accept the many non-Christian religious philosophies which the majority of the world still follows. But those of us who have lived with peoples who believe in Mohammedanism, Confucianism, or Buddhism find that their religions actually serve them well. We are all talking about the same God, whether we call Him Allah or something else; and who are we to say that theirs isn't a good religion *for them?* On only one thing can we be dogmatic: that *any* religion is better than *no* religion.

Needed: Linguists

We are going to have to get used to neighbors not only with different colored skins and with different religions, but with neighbors speaking different languages. We are a one-language country. American travelers are embarrassed on finding that so many other people speak several languages. We are probably the only major country in the world whose educated class speaks only one language —the mother tongue. This is a real problem for airlines and other business firms who are trying to staff their offices in several countries. Where are they going to find American employees who can speak several languages? A business representative can't say to a prospective customer, "If you only knew English, I have something good I could sell you." We must learn other languages if we are going to have a place of leadership in the world, either commercial or political.

The Tourist Question

Now what about the tourists? It is time we are beginning to prepare them to travel intelligently. Only when they go to another country, aware that the people of that country may have developed some things better than we have, can they profit by their contacts. It may be music, art, poetry, philosophy, or a sense of humor, as in Ireland. Before we travel abroad, let's learn to look for things others have done better than we have. Then we shall be prepared to travel and to make friends. Where airplanes have dropped missiles of destruction, they can now bring together peoples who wish to be neighbors. It is the boundaries of our minds that are keeping the world apart. Airplanes can transport people; but the real job is going to be to break down the barriers in the thinking of the people who travel and to build a world of friendship, understanding and appreciation.

Pan American World Airways Educational Program

By GEORGE GARDNER
Educational Director,
Pan American World Airway

AVIATION is a young industry and it is not strange that youngsters of school age have always been among its most enthusiastic supporters. They never considered learning about airplanes tedious and often students knew more about the technical phases of aviation than did their teachers. By the sound of a motor or a glimpse of a silhouette they could tell in an instant whether a Constellation, a DC-4 or DC-3 was flying overhead. But this did not mean that they fully understood the implications of the Air Age; it was rather a case of failing to see the forest because of the trees. It remained for the teacher to explain the potentialities of air transportation and the effect it was bound to have on daily living as well as world affairs.

Tools Lacking

Recognition of the task, which was to introduce the Air Age now not as a separate aviation unit but as a concept inherent in the entire curriculum, proved to be easier than the location of the necessary tools. Although the source material available, such as the "Air-Age Education Series" of text books and the *Aviation Education Source Book,* were of high caliber, more were needed. Teachers themselves finally took the initiative and began to flood airline offices, the primary source of information about air travel, with requests. They asked for pictures, posters, pamphlets, even timetables, anything that would help them to discuss aviation with their students. These activities prompted various agencies including Pan American World Airways to provide Air Age education material for them. Specialized aviation instruction such as pre-flight and other aviation courses have been left to aviation schools; a few technical high schools, colleges, and universities having aviation departments.

Difficult Decision

As the pioneering United States overseas airline, Pan American World Airway daily received mail bags overflowing with teacher inquiries. Their decision to prepare educational materials was not a simple one to make, however. Educators themselves were not in agreement as to the merits of information disseminated by a commercial concern. Some were afraid the data would be cluttered with advertising plugs, but the majority felt that they would be benefited by help from any competent source.

The field of Air Age education is so broad that effective coverage could be obtained only by specialization. With Flying Clippers touching every continent and most of the countries in the world, Pan American felt that its greatest contribution could be made by

compiling information about the nations to which it flew, with special emphasis on the changes and new opportunities for knowing them that have been brought about by the Air Age.

The "Good Neighbor" countries became Pan American's subject, and new timely information through the publication of a paper, pamphlets, teaching units, slide films, and motion pictures became the objective. Some are prepared specifically for teachers or are issued in response to many requests, others are carefully selected from the regular production of our advertising department because of their special educational appeal.

"Classroom Clipper"

The backbone of our activities is a bimonthly newspaper published during the school term which is mailed to teachers upon request. Besides current information about international air transportation, its contents are of particular interest to teachers of geography, history, economics, civics, and languages. The aim of each article is to give current factual information which is not yet readily available in textbook form.

Supplementing the regular issues of the *Classroom Clipper* is a pamphlet series designed to provide reference material for teachers and libraries that will be of lasting value. Among the pamphlets especially written for schools is a collection of true stories about the drama and human interest of Clipper flying. They provide valuable background information concerning the countries served and have the authenticity of at-the-scene reports of airlines personnel. The first in the series is entitled "The Flying Clippers in the Southern Americas" while the second deals with "Pacific Alaska Flying Clippers." A third concerning activities in the Atlantic area is contemplated.

Often material which has educational value may be found among the productions of our advertising department. Numerous language teachers have been delighted with two pocket dictionaries listing phrases in English and Spanish or Portuguese which are used in every day conversation by the air traveler and his hosts alike. Two full-sized illustrated color booklets (now out of print but undoubtedly in many school library files) dealing with current economic facts about nations of Latin America and the rest of the world were most favorably received by educators throughout the country.

Sometimes teachers themselves by their many requests for reprints of articles appearing in our paper dictate the type of material to be prepared. "How To Win Friends And Influence Latin Americans," which discussed the customs and social usages of Latin American countries, first appeared in the *Classroom Clipper* before it was made available in pamphlet form. Another article to be expanded into a pamphlet was a survey of educational opportunities in Central and South America. In addition, mainly because of teacher inquiries, Pan American World Airways has sponsored an International Letter Exchange plan for initiating correspondence by classes in the United States with classes in other countries served by Clipper.

Teaching Unit

In line with modern educational methods, Pan American has adopted

the teaching unit—a collection of materials on a specific subject for specialized study over a short period which may be a day, a week or sometimes even two or three weeks. In entering this field we have had the advice and assistance of leading educators.

Our first visual aid teaching unit, now being completely revised, was on Latin America. It was prepared with the advice of a special committee comprised of persons with expert experience in the fields of visual aids, curriculum methods, and Latin America, and the unit included production maps, booklets, a manual for the teacher, and a slide film.

Our second project, prepared with the advice of a foreign trade professor, was entitled "World Trade in the Air Age." Its aim was the introduction of the subject of world trade into high school social studies classes with the emphasis upon the role of air transportation in that field. Another unit, for fourth and fifth grade geography students, is being prepared with the advice of the *Grade School Teacher* magazine and two teacher writers.

Personal Contacts

The tie between our New York Office and educators throughout the country represented by these printed materials is further strengthened through personal contacts by a field representative and district sales office personnel. Our field representative has attended as many school meetings as possible, showing materials and talking to school administrators and teachers as well as helping text book and magazine publishers to compile information and secure illustrations on aviation topics. New teacher contacts are also made through the cooperation of Pan American's district sales offices where information on our educational service is available upon request.

Color-sound films are another means by which the education service endeavors to promote understanding of other peoples in other lands as well as to encourage air travel. Scripts are prepared in advance to assure proper emphasis upon the more important aspects of the life of the country in question. In the production of our latest film on Ireland, direct sound recording was used for the first time. That is, instead of a commentator, actual Irish people speak in many sequences. Other films cover Latin America, Bermuda, and Alaska, with a West Indian travelogue just completed and one on Mexico and Guatemala in production.

Benefits to Airlines

You may well speculate that even if teacher requests were the stimuli of Air Age educational programs, airlines which have responsibilities towards employees and stockholders would not have expanded these activities without considering their potential benefit to themselves. The explanation is simple. The eleven million education executives, school administrators, college professors, school teachers, and students are a vast travel market. They have both the inclination and time to travel and often can advance themselves professionally as a result of travel experience. Those who formerly used their vacations for travel in the United States now want to travel abroad. Others who used to travel abroad by cruise ship or ocean liner now want to fly and spend more

time in the destination of their choice. There is always the possibility that when desire is converted into action by an educational service it will be channeled into travel with the company represented by the service.

Above all, however, mass acceptance of air transportation as an everyday mode of travel is the aim of the entire aviation industry. It is to the advantage of all airlines to have authentic information concerning its activities and potentialities understood by the greatest number of people. Teachers are a direct link between aviation and the youth of the country who are the air travelers of tomorrow. In addition, those who want to keep abreast of current developments can utilize airline services to enhance their teaching. The student also benefits through modern instruction based on the latest information and statistics available.

a significant publication . . .

THE SOCIAL EFFECTS OF AVIATION

By WILLIAM FIELDING OGBURN

What will be the effect of aviation on government, on cities, on education?

How strong will be its influence on health, population, and the family?

What will be its effect on the railroads, on ocean shipping, on manufacturing?

In THE SOCIAL EFFECTS OF AVIATION, Dr. Ogburn and his associates, experts all in prediction, bring you their best answers to these and many other highly important questions. Here is a major attempt at forecasting the social changes and problems which will come as a result of aviation's coming of age.

THE SOCIAL EFFECTS OF AVIATION is a book for every person who is concerned with the future.

HOUGHTON MIFFLIN COMPANY

Boston New York Chicago Dallas Atlanta San Francisco

The Air Age Center

By PHILIP S. HOPKINS
Link Aviation, Inc.

A CHARACTERISTIC of thinking is that when the question "why" has been answered, it is inevitably followed by "how." This has been especially true in the thinking of educators regarding Air Age education and its place in curriculum revision and improvement.

"Why" and "How"

The "why" of Air Age education, *i.e.* the value of the airplane, its use to and influence on education, has been established and accepted. Now teachers and school administrators, from kindergarten through college, are asking "how."

One suggestion has been made which is equally applicable to every level of instruction: the establishment of an Air Age Center.

An Air Age Center is a neat package of aviation materials wrapped within four walls — an independent unit so organized that it can reach, unhampered by departmental boundaries, into every corner of the curriculum. It puts aviation in an advantageous position to realize its infinite potentiality in improving and revising the school curriculum.

Consisting essentially of a large classroom conveniently located, the Air Age Center can provide library facilities, visual aids, motion pictures, work tables for class use, and, where possible, a comfortable lounging corner.

Because of the wealth of free and inexpensive Air Age materials now available, the cost of the library should be small. Excellent visual aids are within easy reach of most schools so that the over-all project should, in most cases, fit within a conservative budget.

So that the Center can be given full use by the entire school, it is suggested that the teacher in charge be responsible only to the administrative head of the school, not to any particular department. This teacher, of course, will have a background of aviation experience.

The Air Council

Effective administration of the Center has been found in an Air Council, made up of department heads of the entire system. A council of this type, in conjunction with an imaginative, experienced Air Age Center director, can accomplish much in developing the full usefulness of materials in all departments.

Teachers within the area served by the Center will be free to bring their classes for demonstration and lecture in an aviation atmosphere. During one day, time may be so allotted that students occupying the room will study mathematics for one period, possibly followed by science groups, social studies, fine arts, manual arts, and general aviation classes.

Student use may actually go beyond the class meeting. Research may be conducted, particularly on high

school science or college engineering levels. The research may be expanded to language arts, or to composition—the Center being a convenient place where the sixth grade pupil can find material to inspire a simple theme and the college student may obtain background for a term paper.

The teachers themselves should be encouraged to use the Center as a source of in-service education. Here they can familiarize themselves with aviation to an extent determined by their interest and the demands of the courses they direct.

Center for Training

In colleges and universities offering teacher training courses, the Center would be ideal as the headquarters for summer Air Age workshops and institutes for in-service teachers. Here are found all of the necessary materials with which teachers can conduct research concerning their own specfic problems regardless of grade level or subject matter.

In some instances it may be advisable to establish a single Center for several schools. It could be centrally located in a town or city to serve the entire system. In cases of colleges and universities, it is recommended that the Center's location be given consideration as to accessibility from all parts of the campus.

Contents of the library, including text and reference books on aviation, charts, bulletins, bibliographies, tracts, units of instruction, teaching guides, state programs, and all other printed matter found to be useful in Air Age education, should be classified as to specific subjects in which it is considered most valuable.

The visual aid section, of course, will be the "animated dictionary" of the room. Among such aids will be maps, charts, pictures, motion picture facilities, models, globes, mock-ups, and demonstration devices. Many government surplus materials, available at small or no cost, are ideal for inclusion here.

The Center can provide to advantage, along with other exhibits, a weather station, including daily weather maps and radio. This can be as simple or as elaborate as desired.

Schools, through the Center, are given an opportunity to expand their services to the public and, in so doing, accomplish an excellent job of public relations. For example, a PTA group might be offered the use of the Center for an aviation lecture or program. Service and civic clubs might be given the same privilege where conditions permit. Some such service could be made available to Boy Scouts and Girl Scouts and, particularly in view of the growing Flying Farmers organizations, to 4-H clubs.

Ready Publicity

Activities of the Center will find a ready reception by newspapers, aviation magazines, and educational journals. The Center itself will prove an ideal spot to originate radio broadcasts.

Size, arrangement and even content of the Center obviously vary with schools. Wherever space is available, a room about 30 x 40 feet is recommended. A room of this size allows adequate space for the best of pertinent materials.

As to actual content, the following are listed as highly desirable. Library; projector; bulletin and display boards; world globe; model airport; assembly

space; lounge; office with storage space; exhibits in language arts, fine arts, social studies, mathematics, physical and natural science, and industrial arts.

Ideally suited to the Center is a world globe between 18 and 24 inches in diameter which rests on a stand about 4 feet high.

A model airport is considered valuable for familiarizing students with airport operation. Suggested is a three dimensional table model of suitable size. Building this model presents a good project for fine or industrial arts groups.

With model airport, world globe and tables moved out of the way, seating capacity for a room of this size would be about 60.

Using this plan or a similar one as a basis, the Center can soon become one of the most popular spots in any school system or college campus. Its value will increase in direct relation with energy and ingenuity of the director in stimulating school-wide and community-wide use.

FOR YOUR BOOKSHELF

Teaching Aeronautics in High Schools. Prepared for the Civil Aeronautics Administration and the American Council on Education. New York: McGraw-Hill Company, Inc., 1947. 419 pages.

This is a report of the results of a study made in the school year 1943-44, of the teaching of aeronautics in fifteen high schools. Part I is devoted to the aeronautics curriculums found, Part II goes into considerable detail on the teaching of aeronautics, including specific subject matter, Part III has to do with school adjustments to aeronautical teachings, while Part IV suggests needed research in high school aeronautics and is appendaged with a list of visual aids. This study, within its limitations, is excellent and the reader will find much valuable information that will help him in either organizing courses in this field, or conducting those already organized. The weakness of the study lays in the fact that no consideration was given to those high schools, such as the one at Teaneck, New Jersey, for example, which had been teaching aeronautics for a decade before the second World War opened. As far back as 1930 five hundred high schools in the United States were giving some type of instruction in this field. — Prof. Roland H. Spaulding, New York University.

A Short History of Opera. By Donald Jay Grout. New York: Columbia University Press. 1947. XVI and 711 pages. Textbook edition (one volume) $6.00.

This is the first continuous, unified history of opera to appear and it is addressed to laymen, as well as to students and musicians. It is intended to introduce opera to those interested in this art form and to serve as a guide for those seeking to trace the course of operatic development through the centuries. Dr. Grout writes in an extremely informative vein and the work is both complete and authoratative. The author begins his story with the lyric theatre of the Greek and goes on to the liturgical drama of medieval days. Especial emphasis is given to the foundations of opera in the period of the Renaissance and the Baroque era following. The Eighteenth Century and the period of Romanticism lead up to the consideration of modern opera. It may seem petty to point out an omission and an error in so monumental a study—Ponchielli and *La Giaconda* are not mentioned and Puccini's *Il Tabarro* is incorrectly translated as *The Clock*. The volume belongs on the shelf of every school library and in the collection of every musician and music lover interested in opera. — William P. Sears, Jr.

Missouri Teachers Are Looking Up

By HAROLD D. WEATHERLY
Aviation Engineer, Missouri State Division of Resources and Development

THE teachers were a bit starry-eyed when the day was over. Truly, they had had some unusual experiences for most of them were grade teachers from the rural southeast Missouri delta area. As part of the Air Age Education Workshop at Southeast Missouri State College, these teachers and students journeyed from Cape Girardeau to Lambert–St. Louis airport to see modern aviation industry first hand.

Come and See

As part of Missouri's statewide Air Age program, the "hands off" signs that have been placed on aviation so long were taken down and the "come and see" signs hung out. These people were shown behind the scenes of the modern air terminal. They saw the complex operation and control agencies at work. They saw the weather bureau charting atmospheric conditions for the entire western hemisphere. They were taken through the naval air station, a modern flying school, and a large private flight operation. For the first time in their lives they heard the whistling roar of a jet-powered airplane. (The Phantom and Banshee jet fighters are manufactured on the field there.)

They saw a 50-passenger Constellation lift lightly from the ground. They were told that the wheels would next touch the earth in Washington, D. C., and the time required for the flight would be considerably less than would be required for them to travel by ground transportation from St. Louis back to Cape Girardeau. As a climax, they were taken for a ride in a modern airliner. Yes, the teachers were a bit starry-eyed when the day was over.

During the first part of the week these teachers were given technical information about various phases of aviation, then shown how such information might be correlated in the various subject areas and grade levels. The *Aviation Education Source Book,* published by Hastings House, was used as a guide.

Basic Information

Only elementary technical information was used for it was felt that teachers might be discouraged by more complex information. The following lecture subjects will give an idea of how the material was handled: How the Pilot Finds His Way, Some Weather Facts the Pilot Must Know, How and Why Airplanes Fly, How Flying Is Regulated and Safeguarded, and The Future of Aviation and Vocational Possibilities. Correlation lectures were as follows: social science, art, language arts, science and mathematics.

Each afternoon field trips were made to local airports near the college. The group was shown features of the various airfields and told their uses. While there, demonstration rides were taken in small planes. It was estimated that over 80 percent of the people taking these rides were "first timers."

In this way Missouri teachers are learning the true facts about aviation. They are seeing that the airplane is bringing a new way of life. There are those who realize that history will list the development of the airplane along with the development of the wheel and the ship. As these technical advances are made, education must prepare man to use them wisely.

Prime Aim

The prime aim of the entire program is to help our educators learn more about modern aviation and give them an idea of some of the problems that their students will face because of future developments in aviation. From the educator's standpoint, Air Age education is attractive since it can be used as motivation in all subject areas. The average child has a natural interest in aviation and confidently expects to use aviation in adult life. The clever teacher will use this interest to teach fundamental educational facts. Experience has proved that aviation is broad enough to provide examples and material for most any teaching situation.

The State Department of Education produced the first material for this program when they published "Air Age Education in Missouri Public Schools." The Civil Aeronautics Administration and the Aviation Section of the Missouri Division of Resources and Development were active consultants in the development of this bulletin. With the assistance of the Civil Aeronautics Administration, the Aviation Section has encouraged the Missouri teachers to follow the recommendations of the State Department of Education. To do this the Aviation Section has an aviation engineer who spends the majority of his time working with Missouri educators.

Air Age Program

After consulting the Department of Education, the Aviation Section published a booklet, "Missouri's Air Age Education Program." This booklet defines the aim of the program and describes the various activities planned by the aviation engineer:

First, a survey was made of Missouri public schools to determine where and to what extent aviation was being taught.

Second, workshops were conducted in the other four Missouri state colleges similar to the one at Cape Girardeau. It was decided that a teacher education program would produce the greatest result so the education schools of these colleges were the centers of activity. These Air Age education programs were attended by over five thousand students and teachers last summer. Two thousand of these educators "flew" the School Link Trainer, a new idea in audio-visual training aids. Of the 550 taking demonstration airplane rides, 403 admitted that it was their first experience with air transportation.

Third, this fall and winter Air Age education is being recognized at four of the district teachers meetings and a half day special Air Age program

is a feature of the State Teachers Meeting in St. Louis.

Fourth, the aviation engineer is going out to individual schools and appearing on assembly programs, arranging airport tours for classes, and assisting in organizing Air Age programs for city and local school systems.

Fifth, free aviation information, teaching aids, and materials are being developed that might help the individual teacher.

As a result of this program, many teachers are adding aviation units. Others are finding aviation examples and experiences valuable in getting and holding student interest. Some schools have a general aeronautics course for students of senior high school level. The abundance of free and inexpensive aviation materials, training aids, pictures, and brochures is encouraging the teacher to attempt aviation correlation. The most encouraging fact noted is that the student's enthusiasm is perhaps greater than his teacher's for this new trend in education. Students are able to see relevance in the teaching and practical use of the subject matter.

A survey will show that writers of modern texts are aware of the educational potential in aviation and are sprinkling their texts liberally with Air Age concepts.

Future Plans

Future plans call for continuing the program. As teachers become familiar with sources of aid and material they will be expected to continue the program without assistance. This will allow the aviation engineer to seek new teacher contacts and to work in other fields. Youth organizations, civic groups, social clubs, etc., all show possibilities for expansion of the Air Age education program. Some adult groups are already cooperating with teachers in various ways in smoothing the way for airport tours and field trips, and they are also supplying speakers and teaching aids to help the teacher vitalize the classroom work.

The Missouri State Department of Education is considering ways of assisting the work. Revisions and suggestions are expected to be made in the state course of study. One suggestion has been made that they might purchase a School Link Trainer and circulate it to the public schools over the state. Plans are being considered for a statewide Air Age education conference.

The Missouri State Teachers Association has been very cooperative and the social study teacher groups are working on the social studies approach.

Teacher Initiative

The individual teacher need not wait to be contacted to start an Air Age education program. Aviation can be used very well as the subject for a unit of work. Teachers familiar with the building of the child-centered activity unit of study should have no difficulty in developing such a unit centered on aviation. Assistance may be had from the various State Departments of Education, the Civil Aeronautics Administration, Washington, D. C., or State Aviation Agencies.

The aviation industry is, of course, enthusiastic. Several of the major airlines have education departments and will be helpful in providing speakers, consultation service, free materials, teaching aids, etc. The traffic

departments have arranged to have airliners and crews available for charter flights at educational rates, and they have held flights at the smaller cities so that teachers might examine the plane and meet the crew for Missouri Teachers' Airline operation and reservation offices also have cooperated by explaining in detail the functions and features of their offices.

All the governmental offices at the airports have welcomed the school groups. Employees have volunteered to be present on their own time to explain the work of the office. Usually the employees on duty are too busy to give much time to visiting groups.

Private operators on the airports will give much time to such visitors. They will furnish instructors to explain details of the small planes. They will show interesting things about their shops. If the manager is approached properly he will make special demonstration rates for flights in the smaller type aircraft. Some have even given free rides to the teachers.

Aircraft manufacturers have some very informative literature about their products. Many will send this material in quantity to teachers for school use. Link Aviation, Inc., Binghamton, N. Y., manufacturers of the School Link Trainer, has an active educational division.

Inspection Tours

Airport visitations are not difficult to arrange. Usually a call to the airport manager a few days in advance will open the doors of the entire airport facilities. If possible, a guide should be secured. This person should be familiar with the airport and aviation in general. The airport manager may be able to find such a person, should the teacher request it.

It is desirable to have this guide appear before the class before going to the airfield so that he may brief the students on what is to be seen. Teachers should urge the guide to talk down to the student's level. Very few airport personnel are educationally minded enough to realize the importance of this. References to the *Aviation Education Source Book* will give an idea of the questions that students of various grade levels would like answered.

Danger Points

Certain warnings should be given to the students before circulating among the airplanes. Most important will be the warning of propeller danger. Still propellers are dangerous as well as moving propellers. Aircraft engines may be started with only a slight movement of the propeller. A "hands off" and "stand clear" policy should be observed when near propellers. Many of the lighter aircraft have fabric covering which may be punctured or torn. It is also inflammable so fire in any form should be watched when near such material.

Many feel that Air Age education means adding a course of aeronautics into the already crowded school curriculum. Infusion into all subject matter is probably more ideal. The aeronautics course may be well fitted into the program of the larger senior high schools but caution is urged in the smaller schools. Should such a course be taught, it is advisable to make it very general. Social, political, and economic implications should be given as much attention as the technical information. Consideration should be given to vocational possibilities also.

True, the student should know how and why the airplane flies but he should also be shown how this machine is influencing the course of human events. With this knowledge, he will be better prepared to take his place in tomorrow's world.

The 1, 2, 3's of Air Age education can be briefly outlined as follows:

For

1. *General Education*
2. Personal Flying
3. Vocational Training
4. National Security

How

1. *Infusion* into the present curriculum
2. *Short units* in established courses
3. Elective courses in aviation

Why

1. Social, political, and economical implications demand it.
2. Time and distance are being telescoped.
3. A majority of today's students *will* fly tomorrow.

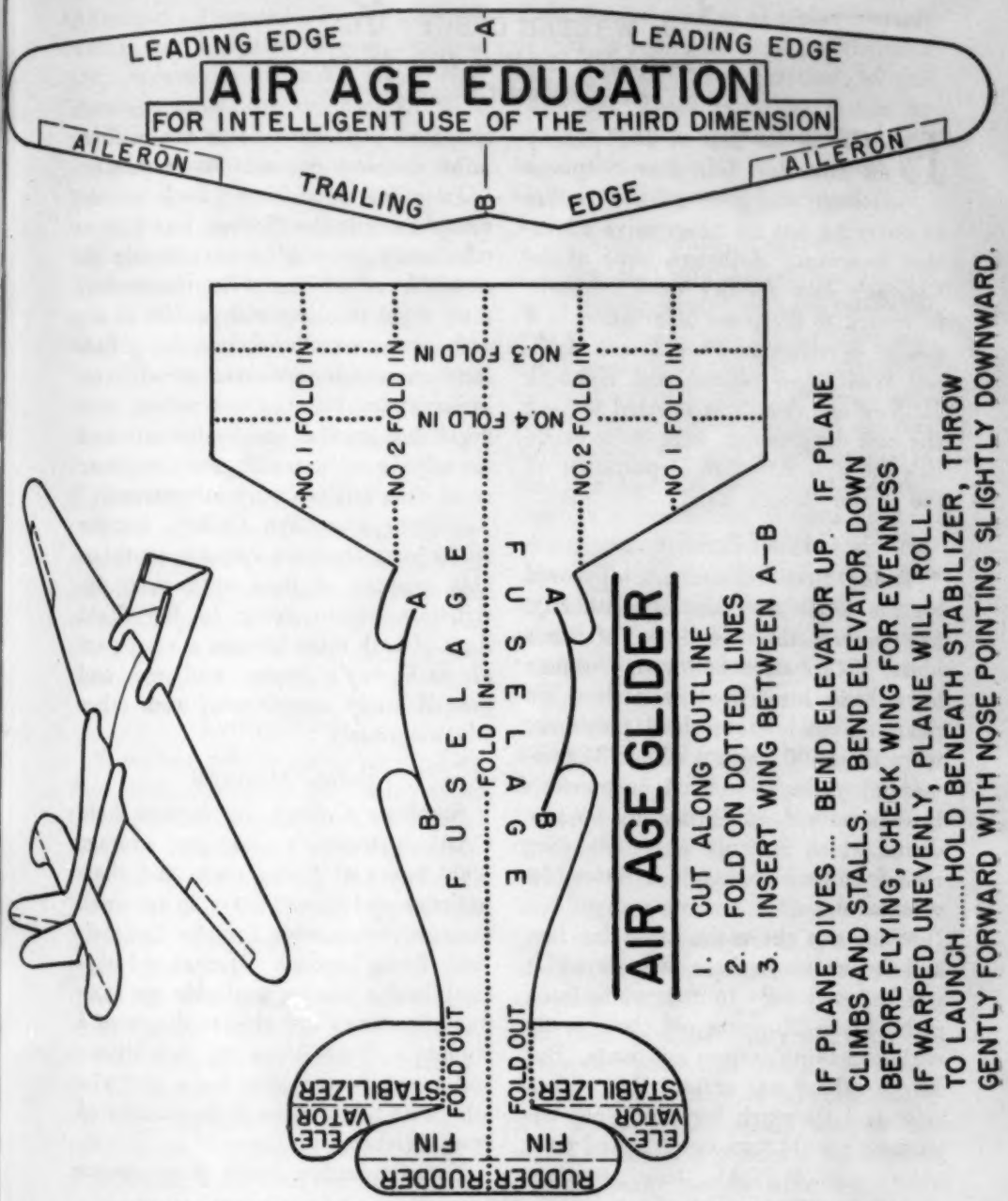
Must

1. Learn to *appreciate,* not tolerate.
2. Be realistic yet prophetic.
3. Give Air Age perspective to all students.
4. Teach basic science used in flying.

Aviation is a dynamic teaching aid; let it *color,* not dominate, the curriculum.

Educators should not be afraid of Air Age education. It is new. Wayne O. Reed, State Superintendent of Nebraska Schools, made this statement, "It is very difficult to get educators to accept new methods in teaching but Air Age education has been an exception. Its growth has been phenomenonal." There are Air Age education programs in all forty-eight states now. It is somewhat revolutionary; however, it is only a combination of all the latest teaching practices centered around man's use of the third dimension. Behind it is the plea from those in aviation for the general public to view aviation developments in their true light and to realize that the future of our civilization depends on how realistically it is done.

TEACHER: THIS GLIDER, WHEN CONSTRUCTED AND ADJUSTED PROPERLY, WILL ACTUALLY FLY. IT MAY BE USED AS A TRAINING AID AND WOULD FIT WELL INTO THE DEVELOPMENT OF AN AVIATION UNIT. ALL OF THE FUNDAMENTAL LAWS OF FLIGHT MAY BE DEMONSTRATED WITH THIS PLANE.



EXAMPLE OF TEACHING AID USED IN THE MISSOURI AIR AGE PROGRAM

An Experiment *in* Safety Education *for the* Air Age

By WALTER C. SUFT, JR.
Instructor, Aviation Department,
Stephens College

BACK in the fall of 1941, many an educator felt that Stephens College had gone a little too far in carrying out its progressive education program. Although some of the College's own faculty were reluctant to recognize the place of aviation in a college curriculum, Pres. James Madison Wood, now retired, and Kenneth E. Newland, who was selected to head the new department, went on to establish the first Aviation Department on the junior college level.

Proof Positive

Today that department, approved by the Civil Aeronautics Authority, has proved the soundness of their ideas. More than 300 young women have been hired by the airlines in ticketing and stewardess positions; more than 400 private wings, 35 commercial ratings, and 24 instructor's ratings have been earned by its students, which is truly an outstanding record in our country's aviation development.

What was the main cause for fear and skepticism in those early days? It was believed folly to attempt to teach girls, 17 to 20 years old, how to fly without having serious acicdents. But Mr. Newland was certain that with a slow and thorough beginning the department could turn out safe and competent pilots. At this writing, Stephens girls have flown six million miles without one serious accident.

In order to maintain such an enviable record, the College has had to take every precaution in training its girls for safe flying. Supplementing their flight training with movies of air maneuvers, weather flying, icing hazards and countermeasures, aerodynamic principles, etc., the instructors, both flight and ground, emphasize safe and sane flying to such a degree that there is no time left for zany maneuvers.

In the attractive College hangar ready-room students spend a considerable amount of time with their instructors before going to the flight line. Chalk talks become a vital part of each day's lesson and air and ground study complement each other advantageously.

Safety Measures

Stephens College instructors hold CAA instructor's ratings, average 3000 hours of flying time, and their patience and firmness are in no small measure responsible for the College's "safe flying" record. Mental and physical health clinics available on campus oftentimes are able to diagnose a student's frustrations or inhibitions and prescribe remedies for a girl who otherwise might have to be eliminated from further training.

Familiarization with instruments

and attitudes of flight is afforded through use of the Link trainers, and students receive Link trainer time when weather cancels regular flight. Two years ago the College added an Advanced Personal Flying course which was designed to give students the opportunity to make many long distance cross-country flights. This was a definite need since it had become apparent that a student's proficiency in the local area did not always mean that she could make it from here to there without getting lost. As a result of this there has been a noticeable improvement in flight students' accuracy in cross-country flying. It was believed that many of these girls would be flying family planes after leaving college and their having a sense of security on distant flights would be most essential.

Each year the College receives letters from parents of Stephens students asking for judgment as to the best type of family plane to buy. Many of the Stephens graduates are now flying personal family planes.

College Fleet

Seventeen planes comprise the College fleet, including one twin-engine Cessna which is used for Commercial students who desire a twin-engine rating and in transporting the College's Pres. Homer P. Rainey on official business. There are seven Cessnas, three Aeroncas, one Ercoupe, and three PT 19's, which are used for advanced flight training. In addition to their main use for flight instruction, the planes are utilized to take geology students, for example, on "air inspection" tours. Many of the College's departments find uses for the planes.

The work of the College's maintenance crew has been outstanding. In addition to their almost flawless repair work they contribute much to safety in flying by explaining to the students the "why" of the various preflight checks, such as checking amount of fuel on board, condition of the tires and controls, and position of all switches. There is no better life insurance than a smooth running fleet of airplanes and in this respect the College has been most fortunate.

Curriculum Integration

From the very outset the department was integrated with the total College program so that all Aviation students might have the advantage of the cultural subjects which are so essential for good citizenship and personal development. The College maintains that Air Age education can come only through a correlation between general education and specific courses in aviation. The College's Advisory Committee on Aviation consists of representatives from all phases of the aviation industry and has been very valuable to the success of the College program. It has been encouraging to note the trend in recent years regarding acceptance of aviation courses as transfer credit. Since the inception of the Stephens aviation program in 1941, many colleges and universities have begun programs of their own and they are now recognizing a majority of the Stephens courses as bona fide transfer credits.

It has been painfully apparent to everyone connected with aviation, either commercially or educationally, that an air crash which usually receives nationwide publicity does scare a great many people who, somehow, have become almost oblivious to the

number of fatal accidents on our highways each year. Airlines feel the repercussions for days or weeks and it was this kind of situation that rightfully caused great concern on the part of educators at Stephens College. Despite this, the college firmly believed that safety could be insured in a controlled college flight program. If a fledging pilot is schooled with the idea that it is never wise to take a chance on weather minimums, a low fuel supply, or a rough running engine, there will be little cause for emergency landings and resulting crackups.

Advanced Course

Stephens students take six hours of night flying as a part of their advanced course, another example of the College's effort to adequately equip its flight graduates so that they may be competent pilots in all situations. This course was added to the curriculum because it was believed that all students should have night flying experience which would be most valuable should they ever find darkness descending before the completion of a cross-country trip. Without this type of training a student might find herself in dire circumstances, for a thorough understanding of flight instruments is necessary to insure safety in night flying.

Training in radio range flying and technique in plane-to-tower communication is included in the advanced course. As personal plane sales continue to mount, it is already apparent that all ships will have to be radio equipped in order to avoid utter confusion within the vicinity of our airfields. A Stephens College control tower provides an excellent means of traffic control and serves to make the students more aware of their conduct in the flying area.

Ground school courses form an essential part of the student training program. For those who wish to explore the field of aviation there are two courses available: Introduction to Aviation and Aviation in the Modern World. Primary flight students are required to take the Elementary Aeronautics class which is a semester course, and Advanced and Commercial students are required to take Advanced Aeronautics which is a two-semester course and includes Navigation, Meteorology, Engines, Aircraft and Civil Air Regulations. The Airline Traffic course is designed to train young women for positions in dispatching, ticketing, passenger handling, and stewardess work. More than 300 girls have been employed by the airlines after leaving Stephens College.

Because interest in flying is greatly stimulated when a group of pilots get together, Stephens students sponsor an Air Meet each spring with emphasis on safety and precision flying. Last year's Inter-Collegiate Air Meet was highly successful, with colleges from five states competing for the trophies. Events centered around problems of navigation and skill in landing, etc., the type of thing a good pilot can always use. Daring exhibitions of the old barn-storming variety are definitely taboo.

No Thrill-Seeking

Mr. Newland has judiciously avoided glamorizing aviation at Stephens. Consequently, Aviation students are not looked upon by their fellow class-

mates as being a courageous, thrill-seeking group. The Aviation department has become an integral part of the Stephens educational program.

It is vitally important that this generation should learn to fly under controlled supervision so that a maximum degree of safety may be insured. And with the entire faculty aware of the ramifications of the airplane on peoples and nations, the scope of the Aviation program at Stephens continues to broaden. No longer in the experimental stage, the College's Aviation department has now become an accepted fact. Her graduates have proved themselves capable, sensible, and safe pilots and they are doing much to stimulate genuine interest in flying in their local communities.

FOR YOUR BOOKSHELF

On Judging Books—In General and In Particular. By Francis Hackett. New York: John Day Co. $3.20.

Literary criticism is a fine art and one that is still in the embryonic stage in America. However, since the time of Henry Mencken, we have become increasingly aware of the need for real critics who help clarify our ideas on what is positive and helpful in building a better civilization. Francis Hackett is one of the few modern critics who, writing in the *Saturday Review of Literature* and the *New York Times*, has influenced the formation of standards for judging literary material.

In my opinion, Hackett's importance lies more in the "general," in his method, than in the particular, though we all admit he is analytical and trenchant in the latter phase.

Hackett opens up his Introduction thus: "Clifton Fadiman has put my theme in one straight affirmation: 'A literary critic is a whole man exercising his wholeness through the accidental medium of books and authors.'"

Most of us today hardly realize the importance of books in shaping the direction and form of civilization. The vast volume that pours out of our publishing houses we take for granted and look upon is much as we look upon a mighty river flowing past us or at the rolling ocean. However, the critical eye is able to discern and show up, either with a telescope or with the naked eye, individual elements of that view such as distant ships, porpoises, or other creatures of the deep.

As we listen to our radio or read our newspapers, we learn of world happenings that are shaping history. How little do we acknowledge the part that books are playing therein. As Hackett puts it: "Revolutions do not start in bomb factories. They start in inkpots. The government that looks into the minds of its writers, as Germany did and as Russia does, deliberately calculates the ferment of criticism, and by politically directing, controlling, or destroying its men of letters, the roots of freedom are killed. . . . . Democratic societies have a collection of epithets for the gadflies that torment them—troublemakers, soreheads, reds, pinks, reactionaries, bolshies—but when a dictatorship comes to grips with the tradition of freedom, it doesn't feint, it exterminates the independent men of letters. From this single fact we can measure their root importance."

This is a "meaty" little book and not one to be absorbed in one sitting, or, indeed in several sittings. It is the kind of book to be taken up and read one chapter at a time because it starts our mental wheels and gets us thinking.

To those who love good books, this volume is a necessity, a scientific guide through the forest of good, bad, and indifferent books. Unfortunately it lacks an index. — HENRY FLUBY, Eastern High School, Washington, D. C.

Aviation Education *in* California

By W. EARL SAMS

Chief of Bureau of Aviation Education,
California State Department of Education

CALIFORNIA'S program of aviation education as sponsored by the Bureau of Aviation Education of the State Department of Education has, during the past year, emphasized the study of aviation on the high school and junior college level. To date, exactly 103 schools have provided for a general aviation education course which includes three hours of flight experience. The three hours of flight are separated into four 30-minute periods climaxed by a one hour period. Although not pilot training in any respect, the flight laboratory periods are designed to provide students with an opportunity to experience practical application of scientific principles studied in the classroom. Flights are accomplished in light two-place aircraft flown by commercial, private, or Civil Air Patrol pilots who are paid only $5 per hour to partially cover cost of operation.

No Limitation

At first it appeared that the limitation of $5 per hour would distinctly restrict the program. It soon became evident, however, that many intelligent commercial flight operators had sufficient understanding of the program's educational significance to be quite willing to devote time to the public school students without profit.

The first year (1946-47) of the aviation education program, which included flight experience, provided 5,984 hours of flight for 1,814 students. Approximately 150 of these students were high school teachers and administrators. A critical evaluation of the comments made by parents, teachers, students, and pilots reveal that it is commonly believed that the program of aviation education will aid materially in the orderly expansion of community planning and in intelligent participation in and use of the Air Age by an informed, thinking citizenry. English, math, and science teachers who had never had any flight experience of any kind have emphatically stated that after their preliminary ground study and brief flight experience, they have acquired a completely new perspective of the significance of aviation content to their own teaching subjects. All have become confirmed personal users of air transportation when time, circumstance, and taste dictate.

Safety Record

Two hundred pilots and 250 aircraft were used in the high school and junior college aviation education program during the past year. No serious accident occurred at any time and the flight experience phase of our study can be said to have gone off without incident except for one forced landing. In this instance the student's curiosity during the landing in a plowed field caused him to lean too far forward and sustain a bump on his chin. The student was required to see a doctor whose fee, paid by the

accident insurance, was $5. All students are required to purchase the $3,000 accident policy made available to them for thirty cents (ten cents per hour).

Hazards to students and liability to school districts, their agents and employees, are minimized, we feel, by the use of light two-place aircraft for the program. Surplus BT's and PT's are not used for this flight experience. Every precaution possible is effected by strict conformance with all written and implied rules and regulations concerned with safety. Using state aircraft, the three consultants and the Bureau Chief make frequent flight checks of airports, aircraft, planes, and pilots concerned with the program. We feel these precautions, the Civil Aeronautic Administration's periodic inspection, and supervision of the flight experience by the public school instructor who accompanies his students to the airfield serve to insure maximum safety at all times. A member of the public school faculty always accompanies a group of students to the airfield for the flight experience.

Risk of liability to teachers, administrators, school board members, and others concerned with the flight of high school and junior college students has been minimized by the purchase of insurance in the amount of $100,000 for public liability, property damage, and passenger liability. No acrobatics are permitted at any time during the flight experience. Spins, stalls, and simulated forced landings are not demonstrated. An approach to a stall with power on slow flight may be demonstrated, however.

Significance of Aviation

Throughout the experience at the airport, commercial operators and pilots emphasize the significance of aviation from a personal, civic, social, and industrial aspect and constantly stress the importance of complete conformance to common sense safety and traffic regulations. Students learn many things from the academic and flight experience; particularly, they become throughly indoctrinated with the idea that while aviation is an interesting and enjoyable occupation, it is a serious business. Safety at the airport is paramount, and while the students are there they are under the direct supervision of the pilot with whom they fly. A duplicate check of the effectiveness of this supervision is offered by the public school teacher or administrator who accompanies the students.

Planned Units

To furnish suitable units of instruction to supplement other available academic materials for students' and teachers' use in the one year general aviation course, this Bureau, with the aid of curriculum specialists, is preparing five units on the following subjects:

1. Community Problems and Aviation
2. Aircraft Structures and Problems of Flight
3. Navigation, Meteorology, and Air World Geography
4. Vocational Problems in Aviation
5. National and International Aspects of Aviation

Throughout the previous school year we raised the question many times: Is aviation education material,

such as that prescribed by the Bureau and outlined above, valid for high school and junior college classrooms? The opinion of Principal Floyd A. Johnson of Herbert Hoover Senior High School, San Diego, is characteristic of that expressed by many teachers and administrators:

> . . . . It is my considered opinion that high school courses in aeronautics, or aviation education, should become a permanent part of the curriculum. If the purpose of education is to prepare people to properly adjust themselves to their environment, and to become effective participants in the affairs of life, then aviation education should be a part of that purpose. We live in an Air Age. We should be prepared to meet its problems. . . .

Sufficient money has been allocated in the State Department of Education's aviation education budget to allow the flight experience to approximately five thousand aviation students during the school year 1947-48.

As an increasing number of our youth become users of personal and commercial aviation transportation facilities, it becomes evident that aviation education is needed if we are to avoid duplication of the waste and death rate now attributed to premature expansion of our automobile traffic. Managing modern air traffic can be proportionately easier as more of our citizens become informed, intelligent, thinking users of this form of traffic.

FOR YOUR BOOKSHELF

The Concert Companion: A Comprehensive Guide to Symphonic Music. By Robert Bagar and Louis Biancolli. New York: Whittlesey House. 1947. XI and 868 pages. $7.50.

This is the sort of reference book that should be on the most available shelf in every school library. It is also a book that every music lover will want to have for himself. The compilers of the volume, Robert Bagar and Louis Biancolli, are best known, perhaps, for the splendid program notes they provide for the concerts of the New York Philharmonic Symphony Society. The present volume is the largest, and most informative, one-volume collection of concert notes available. Anecdotes and details of the composers' lives are presented to give a framework within which the masterpieces are discussed. One hundred and sixty-two composers are presented alphabetically and concise comments on more than five hundred compositions are included. This is an indispensable guide for all who listen to the fine music. — WILLIAM P. SEARS, JR.

The Meaning of Treason. By Rebecca West. New York: The Viking Press. 1947. 207 pages. $3.50.

There are a few writers today who can employ the English language in so splendid a style as can Rebecca West. And the beauty of style never gets in the way of Miss West when she tells a story. *The Meaning of Treason* is a weird and even a pathetic gallery of characters—William Joyce ("Lord Haw-Haw"), John Amery, and the fantastic Baillie-Stewart—traitors and international criminals and hangers-on to the evil Hitler regime. Rebecca West writes crisply of the courtroom scenes when these grotesque figures were brought to book. Moreover, she goes beyond the mere cases of these sad and foolish men to discuss the problems of justice in matters of loyalty. Out of her thinking there emerges a pattern of human relationships and the place of the State in our lives and in our world.

—WILLIAM P. SEARS, JR.

Aviation *and* University Objectives

By LESLIE A. BRYAN
Director, Institute of Aeronautics,
University of Illinois

AVIATION not only challenges the objectives of the university in general but also places additional responsibilities specifically upon the university. Among these responsibilities are those in the fields of general education, professional education, vocational education of a terminal nature, and research.

University Responsibilities

In the field of general education the university should meet its responsibilities through (1) the enrichment of liberal arts courses, (2) the enrichment of guidance procedures, and (3) the development of a general course on the broad impacts of aviation upon society.

All fields of physical and social science have been offered great enrichment by the development of aviation. There is hardly a principle of physics or chemistry that cannot be illustrated or demonstrated by the fields of aerodynamics and air navigation. In the social sciences such problems of theory and practice as decentralization of population, accident liability, recreation, government relationships, and the freedom of the air, as well as the pressing current problems of airport zoning, rates and fares for mail and cargo, quarantine regulations and customs restrictions, offer enrichment opportunities of the first magnitude.

In the study of languages in general education, there is crying need for a leadership reflecting the issues which the Air Age has intensified. Students as world citizens need a practical knowledge of the several major world languages. Conversational skill must be sufficient for physical needs and for a cultural and economic understanding of all foreign countries in which one may work or travel.

In the skill subjects such as mathematics, composition, or speech, a motivation for learning can be speeded by a utilization of the colorful and engaging panaroma of contemporary events provided by aviation. Since the curve of aviation interest rises to a peak during the formative years, high school and college students are a nation's most air-minded group. With comparative ease and the assurance of ready acceptance, therefore, the university instructor can enrich his course or courses with air-world problems and materials. Service experience of the thousands of veterans, who have returned with a new background of experience and observation to draw upon, has speeded the aviation enrichment of college courses by several decades.

Proper Evaluation

Spotlighted by the war, and like anything new and glamorous, aviation shows a challenging need to be evaluated properly. The field for aviation vocations is a rich one, but needs to be integrated skillfully and carefully into the university guidance program. Universities must provide well-informed guidance counselors in aviation with an honest understanding not only of the vocational opportunities in aviation but also of the general

bases upon which recommendations to inquiring students should be made. The publications of several government agencies, notably the Department of Commerce, have aided in providing sound vocational advice on aviation matters to those who otherwise might have been misled.

The third need in the field of general education holds countless possibilities and is one which is particularly adapted to the resources of a university. It is the need for the introduction of a general course in the social, political, economic, and international importance of aviation, open to students in all departments of the university. Which department gives the course is not important. Indeed, if the course can be given on a horizontal departmental-cut-across basis, so much the better. Returning veterans who can contribute in many fields to such a course are to be found in all departments of the university.

Scope of Course

The course should include introductory material covering the field of aviation as a part of the world transportation system, some elementary aerodynamics, a description of aircraft types, and of the airport as a part of the air highway. Additional material should cover the economics of the transportation of cargo, mail express, and passenger and private flying, as well as the governmental—town, state, national, and international—aspects of regulation and control. A final section of the course should include the industrial and military aspects of aviation and some social aspects of air transportation. Included among the latter are the effects of aviation on social institutions such as the family, religion, and government.

A second broad aviation field in which the universities have an increasing responsibility is that of professional education. Included in this category are (1) business administration courses, (2) engineering courses, and (3) teacher training courses.

Aviation Management

In the realm of business administration courses, there are certain basic aviation management courses which the university should offer. These include airport management, and airline management and operation courses. It is doubtful if much further specialization of course is necessary, though many fundamental courses in management, finance, advertising, salesmanship, marketing, and personnel should be enriched with a study of the practice and problems of the aviation industry.

Some universities have expanded their offerings to the extent of offering certificates or degrees in airline operation and management. Other institutions offer one or more courses in aviation management which, when taken in connection with general business management sequences, accomplish for the students the same general results as a degree course in aviation management.

Professional engineering courses which universities should include in their aviation offerings are not all in the aeronautical engineering curriculum. There also should be in the electrical engineering departments courses on airport lighting, electronics and communications, and electrical circuits; and, in the civil engineering departments, courses on metals and alloys, structures, and airport construction.

As perhaps never before, universities are challenged today to produce

trained teachers. University responsibility is particularly great in the field of teacher training in aviation. Teachers generally must be made more aware of the force aviation is exerting upon national and international affairs. In many cases older teachers must be brought up-to-date. Universities may contribute to this through workshops, orientation courses, flight experience opportunities, seminars, lectures, and institutes for both the new and the experienced teacher. When one considers that the major national and international problems of today are intimately tied up with aviation, the place the teacher should take in helping to solve these problems becomes self-evident.

Vocational Programs

Universities have, as a third responsibility, the development of basic vocational education programs of a terminal nature. These programs are two in number and essentially career preparation in character. Universities should assume the burden for the development of terminal programs in (1) aircraft maintenance engineering and (2) flight training. The maintenance engineering course would qualify the student for the CAA mechanic ratings. Such courses should provide both practical training and some cultural education over a shorter period of time and on a level somewhat below that of the professional aeronautical engineering course. It is quite feasible for universities to offer both the professional aeronautical engineering course and the subprofessional maintenance engineering course, since it is possible to utilize many of the same facilities and laboratories. Courses should include technical work on aircraft structures, engines, propellers, instruments, and radio.

Flight Training

Universities should make available to all students opportunities for flight training, if for no other reason than the indirect contribution to a reserve for national defense. Flight training itself does not necessarily have to be given by the university, but the ground school, or pre-flight, courses should be. All ground school work should carry academic credit and be in all respects on a college level, with the flight training essentially laboratory work. With such a program, the university immediately takes a leadership in what may later, perhaps, become a secondary school function, that of helping to solve some of the problems accompanying aviation similar to those which the schools missed a generation ago in the development of the automobile. Courses should include work leading to the private and commercial certificate, and to instructor and instrument ratings. Such types of courses give both vocational and avocational training.

Research is the fourth field in which the university has a responsibility. The need for widely expanded aviation research in the social sciences is pressing even though not as self-evident. Universities note the fact that technology brings social change, accept the thesis that inventions make certain changes in customs and social institutions, and then, for some reason, do relatively little about it. No university worth its salt, no college however limited, no department is too small to find a field of research in which to contribute to knowledge of the impact of aviation upon society. All have the responsibility to do so, not only for the youth of today but also for the youth of tomorrow.

The Flying Schoolmasters

By CARL M. HORN

Associate Professor of Education, Michigan State College
East Lansing, Michigan

FOUR huge passenger planes will drop out of the clouds over the Willow Run airport at Detroit on February 18, bringing some 200 leading educators from the West, Southwest and Middlewest to the Motor City. This will be a phase of the largest mass movement of education leaders by air that has ever been carried out. It is not a stunt or an exhibition. It is education catching up to an Air and Atomic Age.

Unusual Field Study

The educators will be on their way to the annual convention of the American Association of School Administrators in Atlantic City. But en route, instead of dozing idly through a dull cross-country trip, they will be making a fascinating and valuable field study of American business and industry filled with important implications to education.

The aerial field trip, staged under joint sponsorship of Michigan State College and Air Age Education Research, will include Chicago, Detroit and New York—three of the most important industrial and commercial cities in the country—in its itinerary. The educators will have the opportunity to study, as few "outsiders" ever have had, the internal workings and problems of some of the giant corporations that have helped make these cities and the country great.

The tour will start on Monday, February 16, in Chicago, at which city the schoolmen will have converged by plane, train, and other means of transportation. On Sunday a 52-passenger plane load will have flown there from Fort Worth, Texas. Others will have arrived from Los Angeles and San Francisco. Each will have made stops to pick up educators en route.

To get some idea of the experiences in store for these men when they join forces in Chicago, consider the itinerary of just one of the four groups into which the total 200 will be split for mobility and diversity of experience. On Monday the group will visit and study Carnegie Illinois Steel. Tuesday's trip will take them through one of America's largest department stores, Marshall Field and Company. After a night flight to Detroit, they will visit on Wednesday one of the "big four" automobile manufacturers, the Chrysler corporation. That night they will hop to New York along with the rest of the party, having dinner as the plane wings its way along the Great Lakes and over Niagara Falls.

Behind the Scenes

On Thursday the group will join the three others and spend half a day at the United Nations Organization and the other half at LaGuardia Field. At the latter place they will be taken behind the scenes where few people are privileged to go. There they will get a first-hand picture of the inner workings of an airport from which hundreds of planes start to all parts of the world every day.

Meeting with the executives of the

National Broadcasting Company following a tour of the studios will occupy Friday for our group of fifty. Long before this time the educators will have learned that the real values of the field study are in the stories of the personnel programs told by the great leaders of business and industry. At N.B.C. they will find one of the best personnel programs in the country.

Aviation Program

On the last day, Saturday, Air Age Education Research will present a procession of leaders in aviation to tell about the amazing developments of air transportation. The educators will learn how the plane is shrinking the world in size, providing new markets for products, and making every small town in the United States a potential home of the decentralized industry that is just around the corner. They will learn that just changing language, social studies, mathematics, and science courses by introducing new information will not be enough.

The other three groups will have similar itineraries, visiting such companies as International Harvester, Sears-Roebuck, Continental Illinois Bank, Swift, Donnelley, Western Electric, General Motors, Ford Motors, Kaiser-Fraser Motors, American Telephone and Telegraph, Metropolitan Life Insurance, and the New York Stock Exchange.

This may sound interesting enough from a sight-seeing viewpoint, but the critical educator not yet acquainted with serious aerial field studies may justly ask himself the question, "What is the special value of such an experience to me as an educator?" A more detailed analysis of what happens when the doors of Marshall Field, Ford Motor, or American Telephone and Telegraph open to him and his colleagues may give a partial answer.

The president of the organization being visited greets the group and gives a brief history of the origin, growth, and present status of his concern. A two-hour tour gives the educators a picture of the operations of the company. They observe the workers at their jobs, get a peek behind the scenes which regular tours do not provide, and get a general over-all understanding of the company and its operation. At lunch they have an opportunity to talk with representatives of top management about their common and separate problems.

Problems in Common

The most profitable part of the day's visit comes in the afternoon, when various department heads explain their programs. Employment procedures, training programs, public relations techniques, and other aspects of the personnel programs are outlined. Labor-management problems are discussed and facts regarding the division of the sales dollar are presented. The discussion period which follows inevitably brings home these facts: business and industrial leaders are as uninformed about education as the educators are about big business; the administrative and other problems of both groups are very similar and they can learn from each other; their problems are not only parallel but are interrelated, especially in regard to the personnel which the schools produce and the businesses and industries employ; neither can solve its problems without the cooperation of the other.

The critical educator may ask the

further questions: "How do you know all this will happen? This is the first such tour, isn't it?"

No, this is not the first field study of this type. During the last two summers a group of Michigan school administrators spent a month studying business and industry along a pattern very similar to that outlined for the first national tour in February.

This is the testimony of these Michigan educators themselves. "It was the best educational experience I ever had," said one superintendent who had attended several universities. "It is amazing to me that the great leaders of business and industry feel that we educators are important enough to spend considerable time with us," commented another.

To meet and talk with men like C. E. Wilson, President of General Motors; Fowler McCormick, Chairman of the Board of International Harvester Company; Henry Luce, Editor in Chief of Time Inc.; Walter Fuller, President of Curtis Publishing Company, is an interesting and valuable experience. These were but a few of America's leading industrialists who met with the Michigan men

Resulting Action

The most important question, however, is, "Does the exeprience result in any changes in education in the local schools represented by the school administrators?" At a recent reunion of the Michigan groups that have made summer field studies, the men reported many activities which were a direct result of their visits to business and industry. One of the superintendents reported that as a result of the tour his school had held a series of meetings with business, industrial, labor, and religious leaders to discuss common problems and methods of cooperation and interpret the schools to the groups.

One school introduced a "suggestion system" modeled on those used in industry. The entire teaching staff of some 300 teachers in another school spent a day in local business and industry. Some twenty-five Michigan schools have held similar Business, Industry and Education Days and many more are planning to hold them.

Public Relation Weaknesses

A realization that schools have been woefully weak in their public relations programs has been one of the major results of the field studies. Several schools have set up advisory committees on public relations. Business and industry have offered to loan their public relations experts to the schools and some schools are taking advantage of the offer.

Perhaps one of the most important developments resulting from the tours is in the field of labor and management problems. Few schools have dared to introduce into the curriculum a study of labor and management. When the educators asked industrial and labor leaders whether the schools should present the facts about labor-management problems, the answer was always in the affirmative.

It was pointed out that many misconceptions regarding profits in corporations, management's attitude toward collective bargaining, the objectives of unions, and many other mistaken ideas come from a lack of facts. Some of the school administrators have decided to tackle the problem with the help of labor and management.

What of the future of plane travel in extending educational opportunities?

It depends on the vision and initiative of school administrators. It is not enough for a few educational leaders to take advantage of the speed of air travel to go to places and persons for aid in developing new curriculums to meet the needs of youth in this Atomic Age. They must make it possible for their teachers to have similar experiences. But even that is not enough. Youth, too, must be given opportunities to get out of their local environments to learn about this America and the world of work. They must be brought into direct contact with American leaders in business, industry, education, government, and with other prominent people.

Plane travel has brought foreign countries as close to every town and city in the United States as Chicago was to New York a generation ago. This means that educators must study at first hand the problems of other countries so that they may interpret to youth the problems of the world.

In ten years it will be a common event for a group of educators to fly to Europe, Asia, or South America to study problems and their implications for education. Thousands of high school and college students will be given new insights into business, industrial, and governmental problems by going to all parts of this country to study at first hand rather than reading the stories in books. Planes eventually will make the whole world a classroom.

The flying trips of educators to businesses and industries are just the beginning. They are experimental, pioneering steps which point the way to a new wonderful era of education.

The president of a board of education remarked, "It was the best expenditure of school funds we ever made when we sent our superintendent on the summer field study of Business and Industry."

Bridging the gap between Industry and Education is absolutely essential to both groups. Educational programs will more nearly meet the needs of youth when this is accomplished. Industry needs the help of Education in the solution of its many problems also.

"Flying classrooms" will go far toward bringing about the mutual understanding between Industry, Labor, and Education which is so badly needed.

A Suggested Outline *of* Courses *in* Air Transportation *for* Junior College, College *and* University Levels

By RAY O. MERTES

Director, School and College Service, United Air Lines

TODAY we live in a new age in which great advances are being made in technological and scientific development and in social progress. Much of this progress can be attributed either directly or indirectly to man's conquest of the air and to his research and findings relative to atomic energy.

Increased Interest

Because of the growing importance of aviation in the modern world, many young people are showing increased interest in the broad field of aviation as a career. This interest was created in part by the wartime stimulation of all phases of the aviation field, and is now being furthered through the continuing integration of aviation education into the instructional programs of all grade and high school levels. This new age and the desires of young people to enter the field of aviation have created many new problems for the colleges.

For some time United Air Lines has been receiving requests from colleges and universities relative to suggested courses of study which might be incorporated into the college curriculum in order to train individuals for participation in the field of air transportation. Educational agencies of other airlines have received similar requests. It therefore seems appropriate at this time that we present some suggested program which might guide the colleges toward a solution of their problem.

To understand fully the problems involved, colleges must give consideration to several important factors. First of all, the entire field of subjects included under the air transportation heading is constantly changing, and any established outline must be extremely flexible to allow for any changes in course content. It must be realized that the total number of employees in the air transportation field is relatively small as compared to other industries and businesses. This situation, coupled with the low employment turnover rate presently experienced in the business, limits most of the job openings to the lower-paying beginning categories and makes the employment procedure a rather selective process. The complexity of the different types of training necessary makes it difficult to fully equip a student with a complete knowledge of the business. Also, the "trade school" nature of many air transport jobs, such as teletyping and cargo handling, might prohibit them from inclusion in most college or university curriculums.

On the other hand, as in other businesses, a higher level of educational background, with a good foundation of

standard business practice knowledge and sales psychology, should eventually be of assistance to the college-trained individual after he progresses through the normal echelons of advancement, although this training cannot guarantee progression.

The School's Responsibilities

Before any junior college, college, or university sets up a program in air transportation on any of the suggested plans which follow, i.e., a selection of air transportation courses, a full two year terminal program, a four year college minor, or a full four year major, it must be aware of the following responsibilities and problems:

1. *Air Transportation is a business, not a profession.*

College or university training is broadly divided into professional and general education. Education in air transportation is not training for a profession, but broad training in a specific business, the fundamentals of which are those of any business, and the peculiarities of which justify its consideration as an individualized subject.

2. *The Needs of the Industry*

The justification for the existence of any specialized training program in any field lies in the capability of the industry or business to absorb those trained. It is absolutely essential that the educational authorities responsible for the establishment and administration of an air transportation program be at all times thoroughly *aware of the current employment possibilities* in the business. It is, in addition, their responsibility to *serve in a guidance capacity* for those students contemplating entering the business as a career and for those students already pursuing a course of study, so that these students may at all times have a realistic picture of the nature and opportunities of the air transportation business.

3. *Awareness of existing programs at other institutions*

Other college or university programs already activated must be surveyed and analyzed in terms of the programs now in existence and the results obtained. It must be recognized that many of the beginning jobs in air transportation do not require college or university training as a prerequisite for employment.

4. *Qualifications for Employment*

The qualifications for employment established by all air transportation companies must be recognized. These include education, high school or its equivalent, and college training which is preferred for some jobs and required for others; good health; pleasant personality and excellent character; U.S. citizenship in most cases; ability to get along well with fellow workers and the public; adaptability and versatility; and certain height, age, weight, and health requirements for some positions.

5. *Qualifications of Teaching Staff*

It must be recognized that competent instructors must be made available to handle the specialized instruction required in this field. Many of the institutions already offering air transportation programs have utilized airline personnel either to handle actual instruction or to conduct teacher training.

6. *Materials of Instruction*

Due to the comparative youth of

the subject, some difficulty may be encountered in procuring adequate texts and training aids. United Air Lines's School and College Service and the similar organizations of other airlines are equipped to provide some supplementary aids and personal services when requested, however.

7. *Different Types of Aviation Training*

The outlines presented here are intended only for non-technical aviation training, e.g., air transportation. Specialized courses of study, such as aeronautical engineering, aircraft and engine mechanic training, meteorological specialization, etc., already exist at specialized schools. The whole philosophy of air transportation training is based upon the teaching of fundamentals common to all airlines. The *specialization of training to suit particular airlines is considered a realm of the particular airline,* for the operational peculiarities of the different companies make it necessary for them to conduct indoctrination and orientation courses for all new employees, whether trained in the field or not.

8. *Student-Cooperative Plans*

The possibilities of establishing industry cooperative programs in conjunction with the air transportation program should be considered. Because of the seasonal business factor in the operation of most airlines, there is a variable peak seasonal employment period during which many of the airlines desire to secure part time employees in several different beginning job classifications, such as passenger agent, reseravtion agent, counter sales agent, cargo handlers, and clerical and stenographic jobs. In the case of United Air Lines, this period exists from May through September and during the Christmas holidays.

The administrator of the college or university program should investigate thoroughly the possibilities of setting up cooperative industry plans to aid the student in securing practical experience in the business, possible college credit, and financial assistance.

Suggested Programs

The following programs are not intended to prescribe a definite college or university curriculum, *nor will the completion of a course of study under any one of them guarantee employment in the field of air transportation.* From the point of view of United Air Lines, however, these suggested programs should furnish an employment applicant with a good basic knowledge of the air transportation fundamentals which have proved from past experience to be of value in making a new employee immediately productive, and should help him advance with the industry.

To make the air transportation program as flexible as possible, adaptable to whatever plan a college or university may adopt, suggested courses of study have been divided into four different plans which should be considered only as suggestions to guide administrators in establishing programs which are designed to produce graduates equipped to enter the field.

PLAN A

A Selection of General Survey Courses in Non-Technical Aviation Subjects

Under this plan any junior college, college or university may offer several elective courses in general aviation.

These courses would give elective credit in any school or department in order to supplement any selected course of study with a general knowledge of the air transportation field.

The following introductory survey courses are applicable for Plan A: Elementary Airline Practices, Aviation in the Modern World, or Air World Geography.

It is recognized that some junior colleges, colleges, and universities already see the need for this survey knowledge and offer course selections of this type, all courses giving elective credit for any school in the college or university.

This course of study is not intended to lead to employment in the air transportation field, but only to provide the student with an appreciation of the position of air transportation in the world in which we live and the effect of the airplane on the social and economic aspects of our lives.

PLAN B

The Junior College Program

The junior college program could be directed toward a specialty in aviation leading, upon graduation, to the receipt of a Certificate in Airport and Airline Operation and Management. It also may be conducted in conjunction with a 36 hour flight program, operated either by a fixed base operator or by the school itself, leading to the receipt of a private pilot certificate at the time of graduation. *It must be recognized that this flight program is not intended to train a student to qualify as an airline co-pilot,* but only to give him additional background knowledge of the entire aviation business, of which actual flying is but a part. The suggested junior college program presented here is based on the two semester college year, with a total of four semesters. The course can be easily converted into a quarter program, using the three quarter normal college year as a standard if it is so desired.

This course of study may lead to employment in several beginning job classifications in the air transportation field and may also be considered as a good general foundation for later specialization in a full college or university major in air transportation.

The following is a suggested course outline for a two year terminal junior college program which may serve as a guide for Plan B.

Junior College Course Schedule

First Year

First Semester

Course	Credits
Introduction to Business	2
Economic Resources of the World	2
Elementary Aerodynamics	3
Air World Geography	3
Principles of Accounting	4
Civil Air Regulations	2
Total	16

Second Semester

Course	Credits
Introduction to Business	2
Economic Resources of the World	2
History of Aviation	3
Principles of Typewriting	2
Principles of Accounting	4
The Airplane	3
Total	16

Second Year

First Semester

Course	Credits
Flight Training	1
Intermediate Typewriting	2
Elementary Composition	3
Meteorology	3
History of Commercial Air Transportation	3
Regulation of Air Transportation	3
The Passenger and Air Cargo Business	3
Total	18

Second Semester

Course	Credits
Flight Training	1
Elementary Teletypewriting	2
Technical Writing	3
Air Navigation	3
Airline Organization and Administration	3
Advanced Airline Practices: Business	3
Advanced Airline Practices: Operations	3
Total	18

PLAN C

A Major in Any Selected Field in a Four Year College or University Program with a Minor in Air Transportation

It is recognized that limitations exist in the determination of which courses of study will allow or be suited for the authorization of a regular minor in air transportation. Certain selected schools within the institution, such as the schools of education, business administration or the department of economics, provide an ideal field for such a minor, and in these cases the minor might be admitted on full status.

The establishment of a minor status for the program would generally mean that the institution offered enough courses in the subject to build up sufficient credit for a minor. Among the possible courses that could be offered would be the following: History of Aviation; History of Commercial Air Transportation; Regulation of Air Transportation; Airline Organization and Administration; Airline Sales, Public Relations and Publicity; Elementary Airline Practices; Air World Geography, and Passenger and Air Cargo Business.

The course of study leading to a minor in air transportation may possibly lead to a number of employment opportunities. It may, *in addition to pointing the way to employment in the teaching profession,* lead to direct airline employment in one of the several beginning job classification, or in other jobs within the broad aviation field in other businesses.

PLAN D

The College or University Program

The college or university program is set up on the basis of the traditional four year course. It can be regulated under the normal School of Business administration or School of Commerce as an established major field of study. The air transportation major can lead to a Bachelor of Science degree. Alternatives to the major plan include a specialty of air transportation with a general transportation major, business administration major with a full selection of air transportation electives, or the addition of one or two comprehensive survey courses in air transportation in the business administration curriculum for those interested in a survey knowledge of the industry.

The course as presented here has been fitted into a typical business ad-

ministration or commerce general course on a four year, eight semester basis, which can be easily converted into a twelve quarter system suitable to institutions operating on the quarterly system.

The suggested full four year program with an air transportation major may lead to employment in traffic and sales, both passenger and cargo, passenger service, personnel and economic controls departments within the air transport companies themselves, or in corresponding jobs in related fields in the whole aviation industry.

Because many airlines subscribe to a policy of intra-departmental promotions, and also, because the turnover in most of the positions ideally suited to the college graduate is quite low, most graduates will find their first employment in air transportation in one of the beginning job classifications in the passenger service, operations or traffic and sales departments.

The following suggested four year college or university program, based upon 120 credits minimum graduation requirement, could lead to graduation with a B.S. degree. It is in no way binding or standardized, but merely indicates the subjects which would give a graduate a complete background in the air transportation field. Course nomenclature varies greatly among colleges, and no attempt will be made here to describe suggested course content. This information is available by writing to School and College Service, United Air Lines, 5959 South Cicero Avenue, Chicago 38, Illinois.

The College or University Course Schedule

Freshman Year

First Semester

Course	Credits
Principles of Economics	3
Elementary Spanish, Russian, Chinese, or French	3
Composition and American Literature	3
Introduction to Business	2
Air World Geography	2
American Government	3
Elementary Aerodynamics	2
Total	18

Second Semester

Course	Credits
Principles of Economics	3
Intermedite Conversation in Spanish, Russian, Chinese, or French	3
Composition and American Literature	3
Introduction to Business	2
Sociology of American Life	2
History of Aviation	2
Civil Air Regulations	3
Total	18

Sophomore Year

First Semester

Course	Credits
Elementary Composition	2
Economic Resources of the World	2
Principles of Accounting	4
Public Speaking	2
History of American Civilization	3
Flight Training	1
The Airplane	3
Total	17

Second Semester

Course	Credits
Technical Writing	2
Economic Resources of the World	2
Principles of Accounting	4
Advanced Public Speaking	2
History of American Civilization	3
Flight Training	1
Meteorology	3
Total	17

Junior Year

First Semester

Course	Credits
Money and Banking	2
Elements of Business Statistics	3
Labor Economics	2
Business Cycles	3
Aviation Mathematics	2
Air Navigation	3
Airway Traffic Control	3
Total	18

Second Semester

Course	Credits
Financial Management	3
Industrial Relations	3
Personnel Management	3
Aircraft Engines	2
The Air Cargo Business	3
Airways and Airports	2
Aircraft Instruments	2
Total	18

Senior Year

First Semester

Course	Credits
Business Law	3
Advanced Airline Practices: Business	4
History of Commercial Air Transportation	2
Regulations of Air Transportation	3
Airline Organization and Administration	3
Airline Sales, Public Relations and Publicity	3
Total	18

Second Semester

Course	Credits
Aviation Law	3
Government and Business	3
History of Commercial Air Transportation	2
Regulation of Air Transportation	3
Advanced Airline Practices: Operations	4
Economics of American Industry	3
Total	18

FOR YOUR BOOKSHELF

An Introduction to the Russian Novel. By Janko Lavrin. New York: Whittlesey House. 1947. 253 pages. $2.75.

The modern Russian novel occupies one of the foremost places in world literature. Only in England and in France has the novel, as a literary form, achieved an equal degree of development. The purpose of the present book is to give the reader an orientation to the basic facts concerning the Russian novel and its importance. The classic Russian novelists—Gogol, Turgenev, Dostoevsky, Tolstoy, and Garkis—are evaluated in relation to the stream of literature and their social, political, and cultural backgrounds. Professor Lavrin brings this excellent reference volume up to date with a consideration of the writers of the Revolution, of the early Soviet days, and of the present post-World War II years. — WILLIAM P. SEARS, JR.

Not By Schools Alone

By MARY JANE HENNESSEY

Marygrove College,
Detroit, Michigan

THE author of the Gettysburg Address, which will remain a classic until the English language ceases to be spoken, the man to whom one of the nation's leading orators and a former President of Harvard University said, "Ah, Mr. President, how gladly would I exchange all my hundred pages to have been the author of your twenty lines," underestimated his education when four years earlier he described it for the Dictionary of Congress as "defective."

Measured by the years spent in school acquiring a formal education it was very meagre indeed. Education, in its broader meaning, however, includes all those experiences by which intelligence is developed, knowledge acquired, and character formed. Applying this criterion, Lincoln's education was good; its acquisition was a life-long process.

An Insatiable Reader

Eager to learn, Abraham Lincoln seized every opportunity for gaining knowledge. Always an insatiable reader, he borrowed books from anyone willing to lend them, read newspapers avidly, listened to others, and spoke frequently to ready listeners. Under such self-directed training his mental powers grew. The secret of Lincoln's intellectual advance would seem to be his jealous use of time, his power of concentration, and his ability to strip a problem of non-essentials to get at the core.

Lincoln's mother gave him his earliest education. It was she who taught her children, Abraham and Sarah, their A, B, C's and first spelling lessons.[1] Using the Bible for her text, she taught them to read,[2] while at the same time she instilled the standards of right and wrong. At six Abraham was launched into his formal training when his parents enrolled him in Zachariah Riney's subscription school. At seven he attended Caleb Hazel's "blab school," so called because this method required pupils to study aloud.

Indiana Schooling

When the family moved to Indiana, Lincoln continued his schooling in Andrew Crawford's establishment; here he attended during several months of each of the years 1818 and 1819. This teacher, like Riney, conducted a "blab school," but in addition to the spelling, reading, writing, and ciphering,[3] he attempted to teach "manners." Little is known of the brief period Lincoln spent under William Sweeney's guidance when he was about thirteen, but two years later he put in his appearance at Hazel Dorsey's school. Here he learned lessons from the Bible, Webster's or Dilworth's Spelling Book and Pike's

1 Arthur Brooks Lapsley, ed., *Writings of Abraham Lincoln*, VIII, 7.
2 Henry J. Raymond, *Lincoln, His Life and Time*, p. 20.
3 Albert J. Beveridge, *Abraham Lincoln*, 1809-1858, I, 56.

Arithmetic.[4] Accuracy in spelling and a clear handwriting were life-long products of his short stay here.

The scraps of formal education which Lincoln picked up in the all-too-brief periods he spent in these several schools formed only a part of his real education. In his spare moments he read and reread the Bible, Weem's *Life of Washington, Aesop's Fables, Robinson Crusoe, Pilgrim's Progess,* ano Grimshaw's *History of the United States.*[5] About 1819 he came across James Fenimore Cooper and somewhat later, the works of Shakespeare and Burns.[6]

Sources of Understanding

The Bible and Shakespeare, for example, contributed greatly to his patterns of thought and style.[7] With both great books he became very familiar, committing much of them to memory. Except for personal contacts, they were his chief source in his singular understanding of human nature.

Weem's *Life of Washington,* while not impressive, indelibly stamped his mind with the glory of service to one's country.[8] Grimshaw's *History of the United States* was indeed a unique volume. Here were found, in addition to the early political history of our country, summaries of the advances made to date in the fields of astronomy, geography, and navigation,[9] concluding with accounts of progress in literature, science, and art. The author's paragraph sounds the clarion call to the American people to give evidence by their actions that "all men are created equal."[10] Surely *Aesop's Fables* was Lincoln's textbook on successful story telling, and it is not farfetched to assume that he capitalized on many of these tales in his own productions.

For most of these books he was indebted to his stepmother who, although illiterate, encouraged him in his studies.[11] Through other relatives he came into possession of Bailey's *Entymological Dictionary,* and later, Scott's *Lessons in Elocution* which meant much to his cultural development.

David Turnham, who had considerable influence on Lincoln's life, owned a copy of the *Revised Laws of Indiana* which he loaned to the eager lad. Lincoln became well acquainted with this large volume containing, in addition to the state laws, important documents of our national history.[12] From this early study of law he began to develop his powers of logic, and to train himself in exactness and accuracy.[13]

Itinerant Preachers

Not the least of the factors influencing Lincoln's education were his experiences with the itinerant preachers in the district, the court trials he attended, and his own early attempts at speechmaking. Although churches near Lincoln's home were few, itinerant preachers spoke at different times

4 *Ibid.*, p. 62.
5 J. G. deRoulhac Hamilton, *Abraham Lincoln*, p. 15.
6 Lapsley, *op. cit.*, p. 29.
7 Hamilton, *op. cit.*, p. 16.
8 *Ibid.*, p. 15.
9 Beveridge, *op. cit.*, p. 73.
10 *Ibid.*, p. 74.
11 Lord Charnwood, *Abraham Lincoln.*
12 Beveridge, *op. cit.*, p. 74.
13 Hamilton, *op. cit.*, p. 15.

in the area. Among these was Parson Elkin, a Baptist minister whom Lincoln traveled far to hear.[14] It was his first contact with a public speaker and undoubtedly he caught the fire and emotional power of these discourses.[15]

Hearing lawyers plead their cases in court was another school in which Lincoln studied oratory. Booneville and Rockford, Indiana, were the two places where he frequently attended trials. Out of this experience came his decision to become a lawyer.[16] It may have been in imitation of the lawyers he heard that prompted Lincoln to give extemporaneous speeches to little audiences on the slightest provocation. Often this yen to speak interferred with his own work as well as that of others, and it came to the point where his father forbade it during working hours.[17] Any topic of interest in the neighborhood—new roads, trials, schools, local politics—sufficed as an incentive for an impromtu speech.

Young Lincoln was considered quite the up-and-coming young man in his community because he kept abreast of current topics as well as political parties and issues.[18] His ability to hold the attention of his audience was due to his power to explain things in a simple way. This was the result of his constant effort to study a subject from every angle and reduce his thoughts to the most elementary expression by using the right word; both practices are evident in his later works.[19]

Literary Efforts

Before Lincoln was eighteen he had written articles on temperance, the American government, and other topics;[20] they were not productions that pointed to greatness. Fortunately for him, however, he grew up in an area which had been newly settled and there were no men of recognized ability to dampen his efforts. In such pioneer country opportunities for leadership came early and Lincoln utilized even the smallest of them.

His struggle for an education in law is well known. The experience and encouragement of the lawyers in whose offices he "read law" contributed to his development. But his experience in the field developed him even more. His appointment as a deputy surveyor brought him in contact with one Mentor Graham, a New Salem schoolteacher who taught him the essentials of surveying and grammar.[21]

New Gains

Since he boarded at the teacher's house the two often stayed up until midnight while Graham explained the calculations which were always difficult for Lincoln. This appointment took him to many sections of the state, multiplied his acquaintances, and gained new friends.[22] The help Graham gave him in grammar was even more valuable. Lincoln benefited equally from the lessons from Kirkham's Grammar; in a short time he mastered the text.

14 Lapsley, *op. cit.*, p. 8.
15 Charnwood, *op. cit.*, p. 8.
16 Lapsley, *op. cit.*, p. 33.
17 *Ibid.*, p. 34.
18 Luther Emerson Robinson, *Abraham Lincoln as a Man of Letters.*
19 Hamilton, *op. cit.*, pp. 13-14.
20 John T. Morse, *Abraham Lincoln.*
21 William E. Barton, *The Life of Abraham Lincoln.*
22 Beveridge, *op. cit.*, p. 132.

His position as postmaster brought him into contact with the Rogers family in whose home the nearest post office was located. Trips to take mail to this station resulted in new cultural interests. Besides making additional newspapers available, the family owned a "chest of books" which they were very generous in lending to Lincoln.[23]

Reading material remained the most important source of Lincoln's learning. After reaching New Salem, Lincoln found his insatiable appetite for reading increased. As a member of the state legislature at twenty-five, he had his first opportunity to use a library. Most of the books he read during this period concerned law.[24] Later, as a member of the House of Representatives he had access to the Library of Congress.

Newspapers and Education

Of the various forms of the printed word, newspapers furnished the most continuous source of education for Lincoln. In his earlier position as postmaster he religiously read all the newspapers before they were claimed. The small revenue derived from the position meant little in comparison to the value he received. Since these weeklies treated principally of politics and government, Lincoln inevitably read accounts of Marshall's dominant position and profound views in the interpretation of our Constitution.[25] He must have been fired with the power of Webster's oratory[26] and the eloquence of Clay.

The *Louisville Journal,* being strongly opposed to Jacksonian Democrats, exerted a tremendous influence on his political thought for he abandoned his family's party to carry the Republican banner.[27] He read four newspapers weekly, reading aloud each Saturday evening to all who wished to hear.[28] Indeed he called the newspaper his greatest luxury.[29]

Lincoln's later works reflect the wide extent of his education. His thoroughness in research as well as his painstaking accuracy are evident in all of his historical works. Most notable perhaps is the speech delivered at the Cooper Union in New York which completely captivated the heart of the skeptical East. It was marked by accuracy in the least detail, accuracy at the price of many hours of patient pouring over books and documents.[30]

The Peoria debate demonstrates the important part his early reading played in his future writing. In this speech there are frequent references to Shakespeare, notably from the tragedies of *Hamlet* and *MacBeth.* Quotations from the Bible are frequent. Over and above these, he borrowed Pope's famous adage "Fools rush in," and Wendell Phillip's characterization of Napoleon in describing the Nebraska Act as "grand, gloomy, and peculiar."[31]

23 Robinson, *op. cit.*, pp. 19-20.
24 *Ibid.*, p. 20.
25 Albert Shaw, *Abraham Lincoln, His Path to the Presidency*, p. 29.
26 Beveridge, *op. cit.*, pp. 102, 130.
27 *Ibid.*, p. 97.
28 *Ibid.*, p. 128.
29 Lapsley, *op. cit.*, p. 53.
30 Robinson, *op. cit.*, p. 104.
31 *Ibid.*, p. 49.

Gettysburg Address

Even the Gettysburg Address, his masterpiece, shows the influence of his first training. His use of the unique expression "under God," omitted in his first drafts, yet so important in the light of their significance, is attributed to his familiarity with Weem's *Life of Washington*. With his retentive memory it was not unusual for him to absorb expressions from his reading and to use them in his everyday speech.[32] Lincoln's familiarity with the writings of Daniel Webster probably accounts for the source of the thought embodied in the now famous words, "Government of the people, by the people, and for the people."

In all he did Lincoln wasted no time in getting to the heart of the problem. His terse presentation stripped the case of all technicalities; his clear logic punctured the arguments of his opponents. His writing reveals his ability to reach the common man with his large stock of ready expressions, accumulated and stored through his years of reading.

There were other factors besides those enumerated which contributed to the lifelong process of Lincoln's education. Among these were the influence of a wife, the early trips to New Orleans, the participation in the Young Men's Lyceum at Springfield, the mastery of six books of Euclid after he had reached the age of forty, and the frequent debates, not the least of which was the series with Senator Douglas, the Little Giant. Perhaps Woodrow Wilson best described Lincoln's development when he said of him:

"He was not fit to be President until he actually became President. He was fit then because, learning everything as he went, he had found out how much there was still to learn, and had still an infinite capacity for learning."

32 William E. Barton, *Lincoln at Gettysburg.*

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Some Thoughts *on* Thinking

By A. F. ENGELBERT

Professor of Modern Languages, Mount Union College, Alliance, Ohio

AT the end of the nine-week grading period Joe College has been measured and found wanting. Professor Jones of the geology department summons Joe for a conference and learns that Joe has received unsatisfactory grades in history and in English and a failing grade in French. Professor Jones goes to the registrar's office and learns that Joe's intelligence quotient, as measured by the freshman intelligence test, conforms to the grades achieved in class. From that point on Professor Jones writes Joe off as a loss and gives him little attention and less encouragement. In January Joe leaves college. Strange to relate, however, Joe later achieves success in a line of work that requires quick, precise, and logical thinking.

Need for Revaluation

Repeated experiences of this kind call for some serious thinking on the part of college teachers. Such experiences raise the interesting question: Is our teaching designed to develop the maximum thinking potentialities, or does our teaching permit dormant minds to remain unstimulated, unexercised, and unresponding? The question may be stated in another way: Is not that which we often call a poor mental endowment nothing more than a mind which has not been properly stimulated and exercised? No doubt the psychologist has the answer to these questions well outlined and properly tabulated. The psychologist deals, however, with groups and with classifications, determines averages and means. In the small Christian liberal arts college we are concerned not with groups and classifications but with individuals.

Service Experience

Our experiences with the veterans have been enlightening. Surprisingly good results are being achieved in the classrooms of American colleges by men who went to war a few years ago with a record of a poor I.Q. and with grades to match. Maturity, seriousness of purpose, increased responsibilities, intensive application are not the complete answer to their present success. The truth is that these men have returned to college with radically changed minds, with minds that have been stimulated and exercised by the type of training they received in the armed forces.

Many men, for example, with relatively low intelligence quotients were given pilot training which enabled them to make split-second decisions upon which their lives depended while traveling at almost the speed of sound. Call it instinct, if you wish, but the fact is that the training they received was designed to give them not only technical proficiency but also agile minds prepared to make correct decisions with lightning speed. A few months before, these same men were sent into mental spasms and facial contortions when called upon to give a sentence containing a transitive verb. The type of training given to the pilot was duplicated in many other branches of the services.

In discussing this training with the returned veteran two things always stand out. First, their training had the best possible motivation: their lives depended upon the manner in which they made use of the opportunity to learn. Probably no other form of motivation could be so effective, but that is no excuse for the complete lack of motivation in some classrooms. Some subjects are more difficult to motivate than others. The social and physical sciences have many advantages in this respect over the arts, but no subject is worthy of inclusion in the crowded college curriculum if it does not offer the possibility for intelligent motivation. With lack of motivation there is little possibility for stimulating mental activity.

Mental Laziness

The other thing that becomes apparent in discussing military training with officers and technicians is that such training in almost all cases meant long hours of concentrated study extending over the whole period of training. An outstanding leader in social work in this area said here recently that in his experience almost all failures in men whom he knew were caused not by lack of natural endowment, but by laziness. I suggest the possibility that in our teaching we tolerate and even encourage mental laziness in our students. Or to put the matter less bluntly, much of our teaching is not designed to demand concentrated and serious thinking. Here we find ourselves in the field of methodology.

It would be presumptious of me to suggest to the historian or to the economist what method he should employ. His method must be adapted to his training, to his personality, to his ability, and to the specific aims of the course. There is no "best method." But it must be stated very positively that unless the method used is designed to stimulate and to demand much thinking, serious thinking, concentrated thinking, it is of little value. In one respect every teacher should be intolerant, intolerant of shallow, superficial thinking, both in himself as well as in his students. No teacher properly budgets his classroom time if he permits that time to be monopolized by a few shallow-pated extroverts who have not gone to the trouble to ascertain facts yet who think their immature judgments should be dignified by being called opinions.

If there is any justification in the oft-repeated charge that the American college specializes in mediocrity, it is because in so many classrooms the *bull-session,* dignified by the name *discussion group,* is accepted as the vehicle of instruction. The method is justified on the basis that it encourages self-expression and trains the students to think on their feet. By the same measure two fishwives discussing the high cost of shrimp would represent the highest ideal of American education.

How to Think

The success of any method must be measured by the manner in which it calls upon the student to exercise his mind. The successful method must employ teaching techniques which show not only what to think but how to think. No music teacher would suggest to a new student who had had no previous training that he should play a composition of Bach. Yet many language teachers tell a begin-

ners class on the first day that they should think in Spanish, or in French, or in German, as the case may be. They have not themselves realized that thinking in a foreign language represents the ultimate goal attainable only after much tedious work in mastering the thought techniques which go into learning a language.

So, too, on many other fields teachers assume that it is not within their province to teach how to think, but only in what channels to think. Every subject offered in a liberal arts college can be designed to exercise certain mental processes: in one class precise thinking; in another, quick thinking; in another, inductive thought processes; in another, deductive processes. But in every classroom the ultimate aim must be to develop disciplined minds prepared to weigh the evidence and to arrive at sound conclusions.

The question then arises: Can we by effecting mental changes also effect changes in the lives of our students? This is simply a re-statement of the question: Can emotional impulses be controlled by rational processes? Does mental ability assure emotional stability? Immediately many exceptions come to mind. Yet it would appear that in the vast majority of cases there is a close inter-relationship between the mental and the emotional life. The teacher's influence here is qualitative rather than quantitative. He is more concerned here with the channels into which he directs the thoughts of the students than he is with the amount of thinking he can stimulate.

A Concrete Example

Here, certainly, example is more important than precept. The bogeyman of teachers is to be called intolerant and dogmatic. But the fear of being so stigmatized should not lead the teacher to the opposite extreme of a spineless lack of conviction on social, ethical, and moral problems. Above all, the student has a right to expect a strong moral character in his teacher. The components of this are decency, courage, fairness, an unwillingness to follow the path of expediency, to bend and to sway with every wind of student criticism and disapproval. This is in my mind far more important and more far-reaching than any other teacher qualification, assuming a certain minimum of intelligence and training. The influence of such a teacher is often unrecognized by the student, but it is one of the most lasting impressions he will take with him from school.

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EDITORIAL

The "More-Than-Money" Need

By CARL G. MILLER

THE supporting public having given education much more financial support during the last year, we now hear from the critics that what the schools need is more than money.[1] We should have, among other things, a new point of view on the moral structure of life and the power and enthusiasm to develop its principles in youth. All this is true.

The schools are integrated, we know, with all phases of national life. If the national economy is pinched, the schools are pinched. If the nation is at war, the schools are geared for war. If the moral tone of the country is in the lower register, as it is right now, then the schools feel its effect. Etc. Etc.

Here are a few evidences of lowered moral tone in and around schools: Cheating in tests is much too prevalent. The use of tobacco has been widely extended, so far that even freshmen high school boys smoke cigarettes without exciting alarm, as do many high school girls. The "incense" of their clothing "perfumes" the classroom. Masculine youth carry to excess the "wolf" attitude toward girls. The guilty conscience after criminal acts is often a missing quantity. Humorists in school publications can make jokes about drinking hard liquor as readily as the radio or Hollywood jesters.

Against such conditions educators certainly can do something. If the moral tone of the country is low following a war, that is insufficient excuse for moral relaxations in and around the halls of learning. This matter of morals can well be the province of both school and church. It has to be or the public, loose as it chooses to be itself, will lose respect for both.

Somewhere and somehow all youth must become very thoroughly acquainted with a set of principles of right and wrong and must develop a conscience to go with it. Parents cannot be sufficiently depended on to help much. They themselves are too much affected by what is the vogue. The schools must have a code which is based on reason and is adapted to modern life but which has fundamental rigidities. The schools can't veer with the mind. Right now there is one thing educators could do with almost immediate effect and that is to revamp their methods for conducting tests. Teachers—best directed by administrators—can make cheating in tests almost impossible. By so doing they can put over conceptions of honesty in a vivid fashion.

For many years educators have tried to make their moral instruction indirect, and some have been highly successful. Direct moral instruction they found difficult and doubtfully effective. Now something new must be tried. To make the thing work it will have to be universal; so, administrators, the problem falls right into your laps.

1 Read, for example, what Stanley High wrote in the December *Reader's Digest.*

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